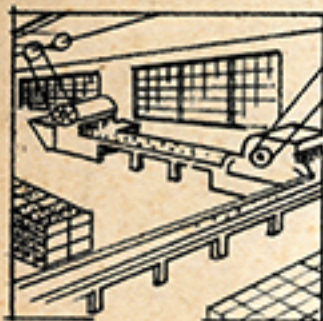




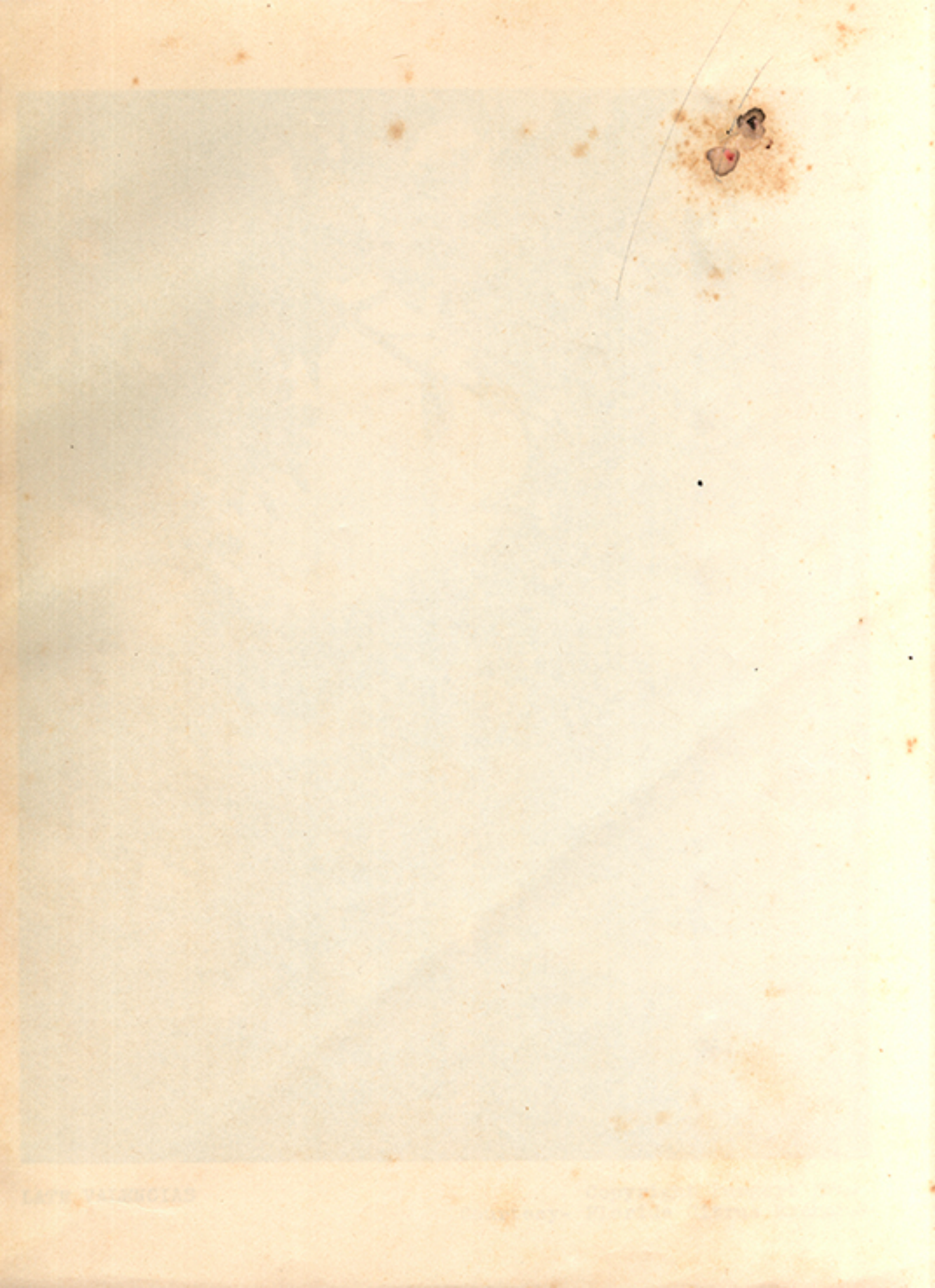
The Citrus Industry and Occupations in Florida

XXIAD

The NATIONAL YOUTH ADMINISTRATION •
• FOR FLORIDA •

Joe A. Youngblood.
• STATE YOUTH ADMINISTRATOR •







LATE VALENCIAS

Copyright Burgert Bros.
Courtesy- Florida Citrus Exchange

• FOREWORD •

Citrus growing is one of the major Florida industries and it seems appropriate that the Florida NYA submit as a contribution to the study of industries of the United States THE CITRUS INDUSTRY AND OCCUPATIONS IN FLORIDA.

Dr. A. R. Mead, Director of Research, School of Education, University of Florida, not only suggested the study but actually directed it to completion, and a considerable part of the actual composition is his own.

The work is, however, an NYA study. Graduate students at the University and students at the Florida State College for Women, all on the NYA College Aid program, visited groves and packing houses, and compiled material available in libraries and elsewhere, thus making possible the volume. Much of the actual writing was done by these graduate students; the typing was done by NYA students. The actual publication is the work of girls on the NYA Resident Project at Camp Roosevelt. They retyped the entire body of material, cut the stencils, mimeographed and then assembled the material in book form.

I am glad to present THE CITRUS INDUSTRY AND OCCUPATIONS IN FLORIDA as a product of NYA.

Joe A. Youngblood
State Youth Administrator

17 Oct 40 Left National Youth Administration

THE CITRUS INDUSTRY AND ITS OCCUPATIONS

The need for information about the number and requirements of jobs in various fields of work has long been recognized by those who deal with young people seeking to find their place in the world of work.

Many studies of such occupations as the doctor, the plumber, the librarian, the machinist, the stenographer and other similar titles are in print. These are of great value and their continued publication should be encouraged.

The NYA, since it serves primarily a less privileged group than those that will enter these fields, has chosen to approach this task from the point of view of the industry and the possibilities it affords for employment of all sorts. Various State NYA Administrators have chosen to study industries characteristic of their states. Ohio for example has made a study of the Rubber Industry, Texas of the Petroleum Industry, Wisconsin of the Dairy Industries, and the NYA in cooperation with the University of Florida now presents a study of the Citrus Industry and Occupations.

Mary H. S. Hayes
Director
Division of Employment

TABLE OF CONTENTS

Page 1

I. Introduction - - - - -	I
1. Persons for whom material is intended - - - - -	I
2. Questions involved in choice of career - - - - -	I
3. Acknowledgments - - - - -	II
4. Suggestions to teachers and counselors for use of the materials - - - - -	III
II. Chapter I. Historical Background and Introduction - - -	1
1. Early history - - - - -	1
2. Climatic conditions - - - - -	3
3. Varieties of citrus - - - - -	4
4. Divisions of the Industry - - - - -	6
5. Amount and Value of Production - - - - -	7
6. Principal Uses of Citrus - - - - -	8
7. Marketing Outlets - - - - -	9
III. Chapter II. Nature of the Work - - - - -	11
1. General information - - - - -	11
2. Work in groves - - - - -	12
1. Tractor Driver - - - - -	12
1. Illustration - cultivation of citrus groves by use of tractor - - - - -	13
2. Spray Hand - - - - -	14
1. Illustration - spraying Florida citrus fruit - - - - -	15
3. Pruner - - - - -	16
4. Common grove laborer - - - - -	17
5. Caretaker - - - - -	18
6. Owner - - - - -	19
7. Outside work with packing houses - - - - -	19
8. Foreman of groves - - - - -	20
9. Picker - - - - -	21
10. Loader - - - - -	22
11. Truck driver - - - - -	22
12. Citrus Irrigation Illustration - - - - -	23
3. Jobs in Packing Houses - - - - -	24
1. General activities - - - - -	25
1. Illustration-Interior view of packing house	26
2. A list of jobs in packing houses - - - - -	27
3. Trucker - - - - -	27
4. Dumper - - - - -	27
5. Grader - - - - -	28
6. U. S. Standards for Grading - - - - -	28
7. Packer - - - - -	31
8. Box Boy - - - - -	33
9. Nailor - - - - -	33

10. Box-maker - - - - -	34
11. Grade and packing inspector - - - - -	35
12. Checker - - - - -	35
13. Pre-cooling operator - - - - -	36
14. Loader - - - - -	37
15. House mechanic - - - - -	37
16. Night watchman - - - - -	38
17. Foreman - - - - -	38
18. Office workers - - - - -	39
1. Bookkeeper - - - - -	40
2. Stenographer - - - - -	40
3. Shipping clerk - - - - -	41
4. Sales manager - - - - -	41
5. Traffic manager - - - - -	41
6. Buyer - - - - -	42
7. Receiving clerk - - - - -	42
19. Manager - - - - -	42
20. Illustration - Interior of packing house - - -	43
21. Illustration - Other features of packing - - -	44
22. Illustration - Other features of packing - - -	45
23. Illustration - Interior of packing house - - -	46
24. State employees in the citrus industry in Florida	47
1. Citrus inspection - - - - -	47
2. Citrus inspectors - - - - -	47
3. Citrus commission - - - - -	48
4. Citrus advertising fund staff - - - - -	48
5. Inspection directed by the State Plant Board	48
6. Illustration - Canning Plant Interior - -	51
7. Illustration - By Products: Stock food mfg. machinery - - - - -	52
4. The canning of citrus fruit and citrus products - -	53
1. Jobs within canning plants - - - - -	53
1. Outside yard department - - - - -	54
1. Fruit feeder - - - - -	54
2. Fruit culler - - - - -	55
3. Waste removing man - - - - -	55
4. Yard foreman (fruit buyer) - - - - -	56
2. Peeling Department - - - - -	56
5. Hot-peel operator - - - - -	57
6. Peeler - - - - -	57
7. Inspector - - - - -	58
8. Checker - - - - -	58
9. Lye-spray operator - - - - -	58
10. Foreman of peeling department - - - -	59
3. Sectionizing Department - - - - -	59
11. Syrup maker - - - - -	59
12. Syrup machine operator - - - - -	60
13. Sectionizer - - - - -	60
14. Checker (after sectionizing) - - - -	62
15. Tray boy - - - - -	63
16. Process tank operator - - - - -	63
17. Closing machine operator - - - - -	63

18. Knife sharpener - - - - -	64
19. Foreman of sectionizing department - -	64
4. Juicing department - - - - -	65
20. Fruit washer - - - - -	65
21. Reamer - - - - -	66
22. Juice filling operator - - - - -	67
23. Closing machine operator - - - - -	67
24. Foreman of juicing department - - - -	67
5. Warehouse Department - - - - -	68
25. "Can-Catcher" - - - - -	68
26. Stackor - - - - -	69
27. Labelor - - - - -	69
28. Trucker - - - - -	70
29. Foreman of Warehouse - - - - -	70
30. Truck driver - - - - -	70
31. Mechanic - - - - -	71
32. Boiler tender - - - - -	71
33. Clean-up man - - - - -	72
6. Office Workers - - - - -	72
1. Inventory Clerk - - - - -	73
2. Payroll clerk - - - - -	74
3. Secretary - - - - -	74
4. Chemist - - - - -	74
5. Superintendent - - - - -	75
7. Alphabetical list of jobs in Canning Plants	75
8. Data and hours of work and wages 1937-38 -	76
9. Jobs and wages - - - - -	80
10. An estimate of number of workers in canning 1937-38 - - - - -	83

IV. Chapter III. Trends in the Citrus Industry in Florida 85

1. Citrus Production and Value - Table I - - - - -	86 - 87
2. Illustration. Valencia Oranges on the Trees - - - -	88
3. Increase in Citrus trees - - - - -	89
Table 2 - - - - -	89
Table 3 - - - - -	89
4. World wide Production of Citrus. Table 4 - - - - -	90
5. Illustration. Indian River Oranges on Trees - - - -	91
6. Oranges: International Trade Principal Exporting - - Countries. Table 5. - - - - -	92
7. Oranges: Principal Importing Countries. Table 6 - -	93
8. Trends in Returns to Citrus Farmers - - - - -	94
Figure I - Farm Price of Grapefruit and Index of Cost of Necessities. - - - - -	94 95

9. Orange Production by States. Table 7. - - - - -	96
10. Grapefruit Production by States. Table 8. - - - - -	97
11. Illustration: Marsh Seedless Grapefruit on Tree	98
12. Carlot shipments of Oranges by Month. Table 9. - - -	99
13. Trend in Value as Compared with Production 1920	100
1. Figure 2 - - - - -	101
2. Figure 2 - - - - -	102
14. Age of Trees and Increased Production - - - - -	100
Figures 4, 5, and 6 - - - - -	103, 104,
	105
15. Conditions Basic to Workers' Income - - - - -	106
1. Investment and Returns - - - - -	106
2. Yields per Acre and Costs. Table 9. - - - - -	103
3. Yields per Acre by Groves and Costs. - - - - -	
Table 10. - - - - -	109
4. Detailed Information as to Costs - - - - -	110
1. Costs and Returns - Oranges. Table 11 - - - - -	110
2. Costs and Returns - Grapefruit. Table 12. - - -	111
3. Costs and Returns - Tangerines. Table 13. - - -	112
4. Per Box Costs Itemized (California). Table 14. -	112
V. Chapter IV. The Workers, Their Classification, Race, Sex	
Schooling and Organization - - - - -	114
1. The Worker in Groves, Packing and Canning Plants - - -	114
2. An Estimate of Total Workers in the Industry, Table 15	114
3. Totals of Persons Employed in Various Occupations	
in Citrus Industry (1935) - - - - -	114
Table 16	
A. General groups - - - - -	114
B. Grove workers - - - - -	115
C. Packing house workers - - - - -	115
D. Canning plant workers - - - - -	115
E. All Other workers - - - - -	115
4. Race and Sex of Workers - - - - -	116
Table 17 - All groups except State Employees - - - -	116
Table 18 - Service Groups - - - - -	116
5. Distribution of Workers as to Age Groups, Race and Sex.	
Table 19. - - - - -	117
6. The Education of Workers as Revealed in the State Census	
for all except State Employees. - - - - -	117
A. Grove workers (Table 20) - - - - -	117
B. Packing workers (Table 21) - - - - -	118
C. Canning workers (Table 22) - - - - -	118
D. Other workers (Table 24) - - - - -	118
7. Personnel Concerned with Buying and Selling Citrus - -	119
Table 24 (Schooling) - - - - -	119
Table 25 (Schooling of Workers) managerial - - - -	119
Table 26 (Manual worker group) - - - - -	120
8. Miscellaneous Occupations - - - - -	120
9. Organization of Producing Groups - - - - -	121
10. Employees' Organizations - - - - -	122
11. Illustration - Plowing in Citrus Grove with Tractor Plow	123

VI. Chapter V. The Marketing and Other Matters in the Industry	125
1. Expansion - - - - -	125
2. Exports - - - - -	125
3. Recent Attempts to Stabilize Citrus - - - - -	126
4. Resume and General Outlook for the Future - - - - -	127
5. Outlook for the Future - - - - -	129

APPENDICES

	Page vi
1. Grower's Cost Guarantee Law - - - - -	133
2. Sections of Growers' Cost Guarantee Law - - - - -	133
3. Orange Advertising Law - - - - -	134
4. Grapefruit Advertising Law - - - - -	135
5. Lemon Advertising Law - - - - -	136
6. Florida Plant Act of 1937 - - - - -	137
7. Sections from Citrus Commission Law - - - - -	142
8. The Citrus Nursery Situation - - - - -	145
9. Orange Production and Prices. Table 27 - - - - -	150
10. Grapefruit Production and Prices. Table 28 - - - - -	151
11. Countries Producing Oranges and Production - - - - -	152
12. Carlot Shipments by months and years - Florida oranges - -	153
13. Statement of Bureau of Sanitation - - - - -	154
14. Florida State Board of Health Rule 29 - - - - -	155
15. List of Licensed Dealers in Citrus, 1936-37 - - - - -	158
16. Florida Canning and Preserving Plants - - - - -	160
17. Qualifications and Opportunities in Citrus Industry - - - -	163
(Excerpts from statements of persons in industry) - - - - -	163
18. Bibliography on Citrus Industry and Occupations - - - - -	168
19. Selected References on Vocational Guidance - - - - -	173
20. National Youth Administration Occupational Bulletins to March, 1936 - - - - -	176
21. Staff of the Study, Committee and Consultants - - - - -	178
22. List of Persons Contributing Materials - - - - -	179
23. Individuals Interviewed - - - - -	180
24. Some Sample Exercises as Suggestions to Teachers - - - - -	181

This book was prepared to provide occupational information for youth in high schools, to a lesser degree in colleges and universities, and to out-of-school unemployed. For the high school youth Chapters I, II, III, are most useful. College and university students will need to examine other materials in Chapters IV, V, and the appendices. The out-of-school individual should consult the table of contents for items about which he (or she) most desires information.

The questions which arise about a life career particularly among young people, are numerous. "Where can I get a job?" is not the only question, even though there was a time when it seemed to be the only question asked. The following are some of the major questions:

1. Where can I get information about X career?
2. Can I make a satisfactory living in X career for myself and my prospective dependents?
3. How can I get into such a career?
4. What education do I need for it?
5. Where can I obtain such education, and can I pay for it?
6. What duties (services) do I render in this career or occupation?
7. What are my civic obligations if I enter such a career?
8. Does such a service make possible growth, advancement or promotion in duties and money remunerations?
9. Can I be secure in such a life work, once I have educated myself and entered it?
10. Is the career one which is of constructive value to society?

Or does it tend to tear down the basic factors upon which we build our social organization?

These are typical of the problems involved, and the list can be extended indefinitely.

The field described in this volume has not, so far as the authors know, been described before. Many of the questions which may arise about occupations cannot be answered by the materials included. This is true because the workers on this project were unable to find any materials to answer these questions.

The materials of this volume came from many sources. Two graduate students, Allison Kistler and Sidney M. Ross collected most of the materials. Mr. Kistler prepared much of the material on the nature of the work; Mr. Ross, the material on Trends. Mr. J. F. Eastham, Principal of Schools, Lake City, Florida contributed many hours of work in placing the manuscript in final form. A large share of the writing of the manuscript was prepared by Mr. Eastham and the writer. It is appropriate, therefore, to call attention to the staff of the study and two lists of contributors in the appendices.

The National Youth Administration has paid the salaries of Messrs. Kistler and Ross, the card punch workers, furnished supplies, and some travel expense for work in the field.

A group of girls in Florida State College for Women paid by the NYA tabulated the information from State Census. We are grateful for cooperation to the State officials in providing access to the records, and to Dr. E. G. Andrews for supervising the girl's work. Large recognition is due Joe A. Youngblood for his interest, for his persistence in support of the project; and to Mr. R. E. Dean, Sr., NYA Area Supervisor, for many hours of conference

work in making and executing plans for the work. We are also greatly indebted to Dr. H. H. Hume of the University of Florida for a critical reading of the manuscript.

Users of the volume should read carefully the next paragraphs and utilize the materials in the bibliographies in the appendices.

Suggestions to Teachers and Counselors

All secondary schools, as well as youth out-of-school, from time to time have need for occupational information. Most high schools have rather scantily supplied libraries. In many, the library does not render as much service and as high a quality of service as it should. Hence, this material is potentially useful if schools will but secure it and use it.

Not only is the material of value as occupational material, but it is also useful in other areas of secondary school work. Teachers of English, looking for material will find information about jobs, salaries, costs, marketing, types of work done, history, etc.

When pupils are engaged in learning activities concerned with Florida, occupations, citrus fruits, wages conditions of living, hours of work, preparation of fruit for market, shipping, marketing, cultivation, this material is potentially of service. It is a body of material useful in varying degrees in the following areas of secondary school work:

- | | |
|------------------------|-----------------------|
| 1. Integrated programs | 6. Natural science |
| 2. English | 7. Agriculture |
| 3. Economics | 8. Home Economics |
| 4. History | 9. Business Education |
| 5. Social Problems | 10. Mathematics |

What has been stated about utility in secondary schools, is true in a lesser degree for students and teachers in colleges and elsewhere.

As a body of materials related to vocations and vocational guidance, it can be used quite well, if young people will glean from it data about such matters as the following:

1. What opportunities exist for temporary or permanent life careers in this industry?
2. What qualifications are needed in the various occupations in which I am interested?
3. Can I make a satisfactory living in it?
4. If I enter this industry, will my service be socially valuable?
5. Can I have a fair chance of maintaining good health, of security of work and income, and protection, if I enter this industry?

Any teacher using this material primarily for ^ov~~v~~ocational guidance will do well to acquaint himself with the nature of vocational guidance before engaging in such teaching. There are some persons who believe that only the inferior should engage in occupations which do not bear the mark of the "white-collar job". There are some who believe that nothing can be done about vocational guidance. Others are inclined to accept without criticism data from intelligence and aptitude tests as settling the matter of vocational choice once and for all. Occasionally, a teacher emphasizes only the money return and slights the other compensations and services to others. In any such cases, it would be well to do some studying in this field before exercising in any arbitrary fashion the function involved in vocational guidance. The writer suggests the study and reading of materials like those given in the appended bibliography.

A third potential use is help to out-of-school youth who are without occupation. Many of these can be helped by occupational information and counseling, schools, the National Youth Administration, service clubs, fraternal organizations--these are means to help our youth in finding a life career and in becoming self-supporting and socially valuable citizens.

A. R. Mead

CHAPTER I

Historical Background of the Florida Citrus Industry,
Its Divisions and Value

Today Florida and citrus are almost synonymous, yet when Ponce de Leon discovered Florida in 1513, it is doubtful that there was a single tree on the continent.

There is a tradition, or legend, that Ponce de Leon and other Spaniards who made explorations in the New World carried in their ships stores of oranges.

These may have been from Spain or from trees supposed to have been started earlier by other Spaniards in the West Indies. Some infer that probably these early explorers brought such fruit, the seeds of which were spread to some extent throughout the area and thus became the beginning of some scattering sour and uncultivated orange trees. Such suppositions should not be accepted as proven facts.

Pedro Menendez de Aviles, founder of St. Augustine, made friends with the Indians by offering fruit as well as other gifts. Missionaries who followed him followed his example. As a result of Menendez's far-seeing accomplishment his nephew, Pedro Menendez Marques, was able to write in 1599 from St. Augustine that "there are beginning to be many of the fruits of Spain, such as figs, pomegranates, grapes and oranges in great quantity." The Indians who had been given the oranges took them into the then unexplored areas of the state and by casting away the seeds and rotten fruit caused many wild trees to grow and bear fruit throughout the inner section of Florida.

Orange groves were noted by many explorers and adventurers from then on in their travels in the state. Jonathan Dickenson in 1696, General Oglethorpe

in 1735, William Bartram in 1773 all found early evidence of thriving groves along the rivers of the state. (1)

During the English occupation of Florida, cargoes of fruit and wine were shipped to England. Because of unfavorable winds, ships were often forced to delay sailing, resulting in a tremendous loss of spoiled fruit. This caused the discovery of the process known as "wilting"-by spreading fruit in direct sunlight, the moisture in the outer skin was evaporated, and the inner skin hardened, thus preserving the fruit.

The introduction of the grapefruit to Florida has two distinct chapters both of which lend a touch of the romantic to Florida's citrus history.

Dr. Odet Phillippe, a surgeon in Napoleon's navy and an exile after the battle of Trafalgar, was cruising along the Florida coast when he was met by the pirate Gomez, who ordered him to board his outlaw vessel and treat the crew for fever.

Gomez rewarded the doctor with a chest of gold and a map of Espiritu Santa Bay. The doctor went there with the gold and a number of pomelo he had obtained in the Bahama Islands. The pomelo seeds produced more of their kind, and "pale as the moon", the pomelo took its place in Florida's history. (2)

The origin of the grapefruit is really an unsettled question, and it is not a major concern of this study. Interested readers should consult the writings of Dr. H. H. Huse and others listed in the bibliography.

-
1. The major portion of this historical material is credited to a contribution of the 'Federal Writers' Project.
 2. Dean, N. O. Golden Harvest. Romance of Florida Citrus, 1937.

Two of the state's earliest groves were the Dummitt and Felipe groves. The first of these is supposed to have been established about 1830 on Merritt Island on the east coast, by Captain F. D. Dummitt. The Felipe was located near the west coast in what is now Pinellas County. Dummitt is credited with originating the parent stock of the present Indian River orange by budding good quality stock on native sour orange tree.

Early shipments of fruit were very small, going by boat up the coast from the Indian River area until they contacted the first railroad connection. All fruit on the western side of Florida was sent by boat up the Cedar Keys, where it caught the train. From the central and Eastern part of the state, the fruit went up the St. Johns River, and also up the East coast by boat, connecting with the train at Palatka or St. Augustine.

Citrus growing on a commercial scale began about 1870, when plantings were located chiefly in what are now the counties of Duval, St. Johns, Volusia, Putnam, Alachua and Marion. Up until 1894, the area around Orange Lake and St. Johns River was said to be chief center of production. These sections produced much fruit and also planting stock for groves farther south. Groves were necessarily located near water transportation. By 1884, production approximated 600,000 boxes per year.¹

The major setbacks suffered by citrus industry in this state have been the results of the disastrous freezes which have occurred so infrequently during the citrus history of the state. The first freeze on record, reported by Bartram in 1766, almost destroyed the St. Augustine groves. Other

1. "Citrus Growing in Florida," State of Florida, Department of Agriculture, 1935, p. 8.

severe freezes occurred in 1835 and 1837 with the mature seedlings in St. Augustine killed to the ground.

The next freeze came in 1886 and was followed a short time later by the very destructive freezes of 1894 when a minimum of two below zero was posted at Tallahassee on February 13, 1899. This mark still stands as the lowest temperature ever officially recorded in Florida.* Since then, there have been only two major freezes which were rather destructive to the crop - 1917 and 1934. (*This record of low temperature has not been verified and may be an error.)

As a result of these freezes, citrus growing was practically abandoned in the northern part of Florida, with the exception of the satsuma oranges. During the past thirty years, the citrus growing section of Florida has been moving southward. Today groves of the choice tender oranges and grapefruit are for the most part below the "frost belt" which is drawn across the state at about the latitude of Orlando.

As the production of citrus fruit expanded, visitors from other countries interested in citrus came to Florida. One of these, a Chinese with the family name of Lue (sometimes incorrectly listed as Lue Gim Gong) came about 1872. Near DeLand, he experimented with orange stock to produce new varieties and originated the orange which bears his name. This is one of the last varieties to ripen and can be marketed longer than other varieties. This variety was given recognition by awarding the Wilder medal (silver) to it by the American Pomological Society.

The varieties of citrus now grown here are divided into three classes: early, midseason and late. Leading early varieties are the Parson Brown and Hamlin; Midseason - Pineapple, Enterprise Seedless and Jaffa; and Late - Valencia and Lue Gim Gong. Thin pool oranges, sometimes referred to as "kid

glovo" varieties, are the Paney Tangerine, Mandarin, King Oranges, and satsuma (Owari). The varieties of grapefruit are: Early - Duncan; Midseason - Florida Common and Walters; Late - Marsh Seedless.

Among the above varieties are three which deserve mention, because of the bearing they have had upon the industry. First, the Temple orange, exact origin unknown, either a hybrid or an exceptionally fine bud variation. Named for the late William Chase Temple who did so much for the citrus industry in Florida, this variety received international attention. Known as the "\$10 a box orange", its popularity became great, and in 1921 about 10,000 acres were budded to Temples in Florida. It has a remarkably uniform size, a deep orange-red color and a smooth lightly pitted skin. Its flavor is sweetly aromatic and lasting to the taste. The very thin skin is tough and easily peeled; the segments are uniform and easily separated. This orange is at its best from February to May, and in fair shape in January and June. It is one of the very best for shipping - a valuable addition to the Florida citrus industry.

A third variety is the satsuma, one of the mandarin group which is grown extensively in North Florida, and is by far the hardiest in the state. According to available records, the mandarin orange originated in Cochin China at an unknown date. It is said to have been brought to Louisiana by the Italian consul at New Orleans between 1840 and 1850. Its introduction into Florida is credited by the Florida Fruit Growers' Association to Major Atway. Exact time of introduction is not known, but probably only a few years later than the introduction into Louisiana. The satsuma was brought into Florida by George R. Hall in 1876 and again by Mrs. Van Valkenburg in 1878. At present, Florida raises more satsumas than any other state - probably more than all other states combined.

In 1935, the United States export trade in oranges, grapefruit and canned grapefruit was valued at more than \$17,000,000. Florida citrus is shipped to every part of the world. The United Kingdom and Canada are the two principal foreign markets.

Since this volume is not primarily concerned with the history of citrus, no further material directly bearing upon that phase will be given. Any students interested in the historical aspects should consult references in the bibliography.

Present Divisions of the Citrus Industry

The citrus industry can be divided into seven integral parts, each of which in recent times performs services without which the industry as a whole could not and would not prosper. These parts, or divisions, are:

1. Growing. Advancement has been in easy stages from the non-mechanized work of the 19th century to a highly mechanized process in 1938. The only phases of growing not now done by machine, either wholly or in part, are planting, pruning and picking.

2. Packing. Most of the progress in citrus industry has been in this field with practically the entire process systematized to a fine point through the use of intricate machinery at every possible vantage point.

3. Canning. This division has its growth in Florida solely in the last ten years with the major growth coming since 1931.

4. Marketing. Florida has never had a systematic basis for the marketing of her citrus and has suffered thereby. Recent plans call for a cooperative organization of growers, packers and shippers for the control of shipment. This organization will be planned after the very successful California Fruit Growers which controls all shipments of citrus out of that state and Arizona.

5. By-products. This division has received little notice until recently but its value to the industry has become emphasized by the research being done on such products as breakfast cereal, cattle food, wine, juice concentrate, citric acid, etc.

6. Citrus nurseries. In Florida, much citrus nursery stock is produced in nurseries devoted solely to that work. An indication of the quantity of this work is shown in table 2 which gives the movements of citrus nursery stock for the years 1933-34 to 1936-37. (1)

7. State inspection and legal work. The Florida Citrus Commission, the State Plant Board and the office of the State Chemist provide a state service which includes inspection of groves, trees, fruit formulation and enforcement of regulations, surveys, etc.

Amount and Value of Production

The total volume of all Florida citrus utilized during the 1936-37 season amounted to an estimated 40,601,208 boxes with an estimated gross value of \$68,838,758 and an estimated net value of \$24,579,298 after deducting production and marketing costs, but before deducting for interest, depreciation and taxes.

Rail and boat citrus shipments had a gross f.o.b. Florida box value of \$2.04 and a net value of 75¢. Oranges had a gross of \$2.50 and a net of \$1.15; and grapefruit a gross of \$1.48 and a net of 35¢. Tangerines had a gross of \$1.45 and a net loss of 20¢ per box.

The 1936-37 citrus season with a total volume of 40,601,208 exceeded the prior 5-year average of 28,886,000 boxes by 40 per cent. The record volume

1. Materials on this situation are found in pages (145-149) in the appendix of this volume.

widely varying fields as wines and cattle feed. Constant advertising of the fruit and its products has made the public "citrus conscious" in regard to sickness prevention.

Marketing Outlets

The principal marketing outlets for Florida citrus, according to marketing reports, are the states of New York, Pennsylvania, Massachusetts, Illinois and Ohio. The states surrounding the five just mentioned also offer substantial markets but in no way compare to their purchasing power. Inadequate marketing preparations have kept these markets from absorbing the amount of fruit that Florida growers would ordinarily expect them to take. This lack of organization must be corrected before the markets of this country and abroad will be ready to take the large supply of Florida fruit.

The Florida Citrus Industry has come a long way since the days of Ponce de Leon and, although nature has at times threatened to destroy the bountiful crop of fruit being grown throughout the state, growers have expanded their groves and have gone into other phases of the industry in order to take advantage of the large crops which come from the trees year after year. Canning, an infant phase of citrus, has been steadily growing under the impetus of increased public demand for canned citrus and the possibility of saving a large part of the cull and excess fruit which ordinarily would rot on the ground.

Both the amount and value of Florida citrus have increased tremendously in the past fifteen years but the competition of the well-marketed fruit from California, Arizona, and Texas in addition to the competition in foreign markets from Palestine fruit, has been having a marked effect on the prices which Florida fruit has been able to command in the large markets.

An increase in the possible uses of citrus together with an efficient organization to control the production, marketing, distribution, and advertising are necessary if Florida expects, in the future, to compete with the products of other producing areas.

NATURE OF THE WORK, THE EMPLOYEES AND THEIR
COMPENSATIONS

Perhaps one of the most pertinent questions arising in the minds of young persons contemplating entering the industry is simply this: "What is the nature of the jobs to be done?" Such persons want to know what each worker is called upon to do in the ordinary fulfillment of his duties.

Each major branch of the citrus industry has distinctive jobs to be performed. Some jobs, such as those of office worker, of truck driver, or of foreman over other employees, may be common to both packing houses and to canning plants, but even these common jobs, though bearing the same names, differ considerably as to the specific activities involved.

Some of the jobs are so mechanical and routine in nature that any one who is willing to work and can follow simple instructions may handle them satisfactorily. At the other end of the occupational ladder may be found jobs so technical, scientific, and exacting in executive abilities that only men with superior training, experience, and education may hope to succeed. But the vast majority of employees in the citrus industry may be classed among the lower ranks of workers. These conditions make obvious the need in the citrus industry of improving the worker, his compensations, and his living and working conditions. As in any other industry, the more satisfactory positions are filled by men who have acquired the ability to concentrate and do research and independent thinking on specific problems, by men who have added to their natural powers the advantages of varied experiences, scientific training, and a liberal education, and by men who have learned how to get along with and supervise other men. For such men there is always room; they, more than any other type of individual, can satisfy

the crying demands of this increasingly important and complex business of growing, packing, canning, and marketing citrus fruits.

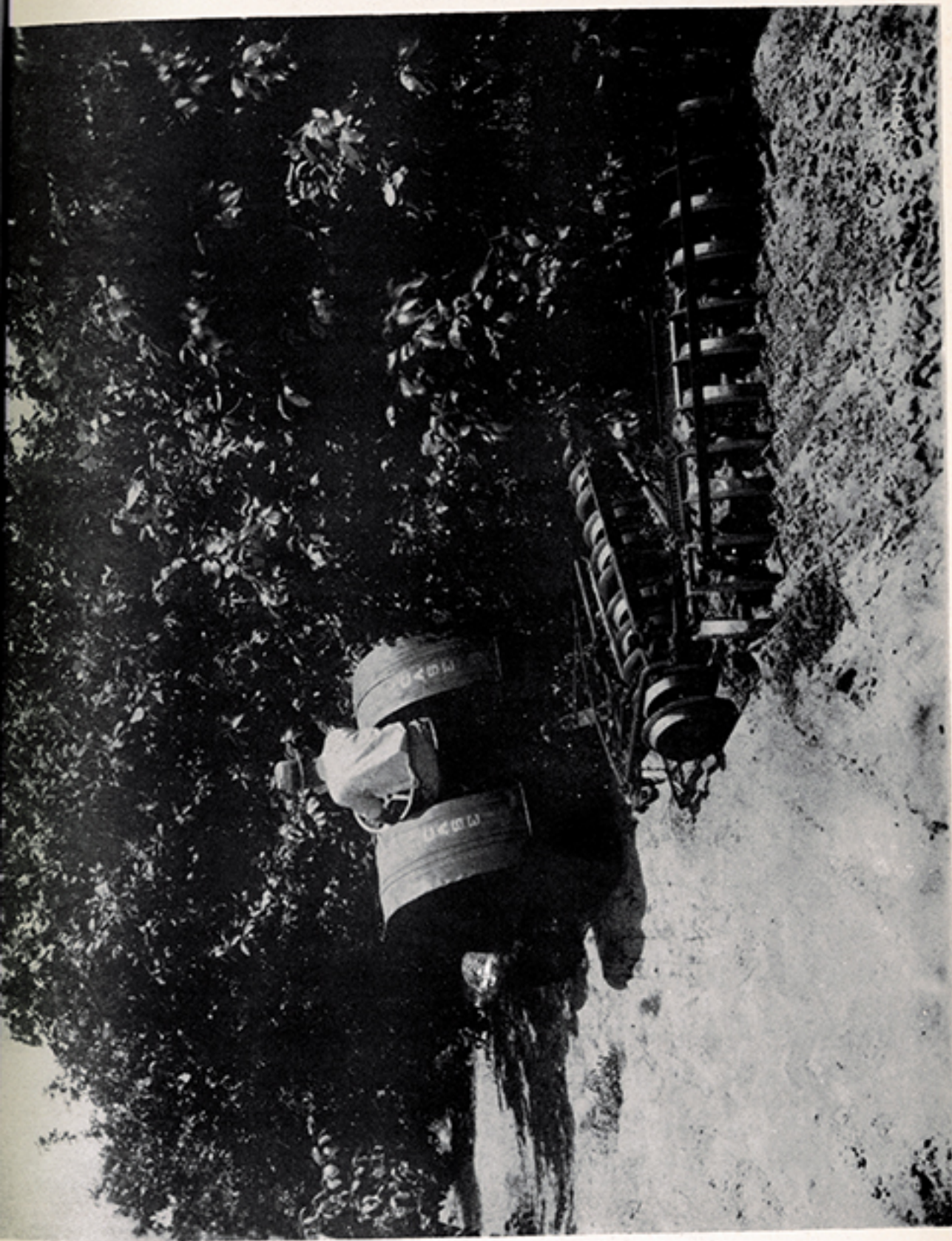
WORK IN GROVES

Grove jobs have changed very little in their essentials during the several past decades. Planting, plowing, harrowing, mowing, fertilizing, pruning, and picking have been keeping grove hands busy since before Florida's "Big Freeze" in 1894-95. But now growers are using more effective methods in their eternal war against diseases and insects. The control of insects has always been a challenge to the grower, and probably always will be. The nurturing and caring of soils to obtain the most profitable results is another problem gaining in importance. It is becoming increasingly apparent that the sensible thing is rather to try to grow more per acre than to get more per box.

The principal jobs found in grove work may be classified as tractor driver, spray hand, pruner, common grove laborer, and caretaker. These will now be taken up individually and a descriptive paragraph given to each. In many instances many, or all of these jobs, are performed by one and the same person. This is often the case in small groves cared for by the owner.

Tractor driver.

Tractors began to come into general usage about 15 years ago. Before that, mules performed most of the work. The tractor driver is in greater or less demand practically the year around. The tractor pulls the plow, the harrow, the disc, the mower, the sprayer, and the fertilizer spreader about through the groves where needed and when needed. Care must be exercised not to drive too close to the rows, for branches and limbs of fruit trees are easily broken. In young groves the branches are short and near the ground and the tractor must stay just beyond their reach. In older groves, the



CULTIVATION

Courtesy- J. I. Case Co.

branches from one row may extend out and actually touch the branches from the next row. But the trees have also grown much taller and the lower limbs and underbrush are cleared away so that the tractor driver may operate underneath with perfect ease.

The driver, in addition to operating the tractor and its allied pieces of machinery, must also take care of it and overhaul it from time to time. Obviously, if he likes to work around machinery and more especially, if he knows something of the principles of electricity and gas engines, his efficiency will be greatly increased. His period of service as a tractor driver is sometimes limited due to injuries to health from dust in which he constantly works. More than likely he will then be shifted to some other activity within the grove or packing house.

Spray hand--

The value of spraying has been recognized only within the last quarter of a century. Yet during this time the techniques of spraying have been tremendously improved. Powerful sprayers of several hundred gallons capacity and several hundred pounds pressure are used to force the spray chemical into the tops of the trees. A 100-acre grove can be sprayed in one day by three men: with one man on each side of the truck to wield a hose and nozzle and one man to drive. Ordinarily a spraying should last about four weeks. But the trees need to be watched carefully for insects, and a good caretaker can tell from experience about when to go back through the grove and check for rust mite insects and diseases. Much depends upon the humidity and the weather. In checking the trees he looks through a magnifying glass at the top and undersides of leaves and branches. At the first indication of bug or diseases the spray hands are put to work. If discovered in time, the spraying of only certain blocks or sections of a grove may suffice. Usually, however, the



SPRAYING

Courtesy- J. I. Case Co.

entire grove is sprayed at once. Insects, if not promptly dealt with, can spread over an entire grove within two weeks. Spray solutions are expensive and much of it will be wasted, regardless of how it is put on. Consequently, spray hands are constantly instructed, cautioned and watched. A knowledge of the effects of chemicals would probably increase the effectiveness of a spray hand.

Different forms of treatment are required for different diseases. For rust mite, spraying from above and outside the trees is sufficient. But for scab, melanose, red spider, scale and six-spotted mite, the spraying must be performed from both the inside and outside of the trees so that all sides of the leaves and branches (and usually the spray hand himself) are dripping wet. For scale, an oil spray must be used. This leaves an oil film over the scale and smothers it. With rust mite, lime and sulphur sprays are used. Either the spray or the mere fumes from the spray will prove effective. The spray hand gradually learns the uses of his materials and how best to apply each so that a minimum of waste is involved and yet the trees are thoroughly sprayed.

Some workers make a living by owning a power sprayer of their own and hiring out their services to small growers who cannot afford to own large pieces of machinery themselves.

Pruner--

The pruner, equipped with a knife and pruning shears, climbs into the trees and amputates all dead wood, water sprouts, and lemon sprouts. The latter are small shoots that spring up from the lemon stock that form the roots of the tree and upon which the bearing tree has been budded or grafted. Some pruners cut out all the limbs and inside growth of citrus trees, but this is questioned, for trees have been known to spread under a load of fruit and

the sun has then baked and killed the big limbs and trunk. If the pruner will leave all except the dead wood and useless sprouts, a larger crop will be yielded and the trees will be better protected against cold and sun. Other rules also guide the pruner in his work.

COMMON GROVE LABORER--

Common grove labor includes planting and caring for beginning trees, destroying of abandoned or diseased groves, cultivating, hoeing, fertilizing, irrigating, firing, (against frost) etc. On small groves it also includes pruning and spraying. The larger the grove and the number of workers employed, the greater the specialization. Dead trees are replaced in winter. Spraying goes on intermittently throughout the year. Hoeing around and away from the trees must all be done by hand since the tractors cannot work in close. In the past, practically all the fertilizing of groves was done by hand. A wagon or truck or low trailer carried the sacks of fertilizer down between the rows and from those sacks the laborers (usually negro) took large handfuls for scattering over the ground beneath and around the trees. But many growers today are employing mechanical spreaders drawn by tractors. The fertilizer sifts down from the carrier onto a revolving horizontal fan that hurls it out broadcast. This method is not only much faster but insures a more even spread. Comparatively little irrigating needs to be done among Florida groves. But a few sections supplement the natural supply of rainfall or minimize the effects of a long-continued dry spell by artificial system of irrigation, usually in the form of flooding or running water through a network of canals and ditches. The grove laborers must see that these ditches are kept open and free-flowing. Of course in the overhead system of spray pipes such work becomes practically nil. Firing against an expected freeze is a contingency that must be provided for by all growers, even as far south

as the Everglades district where frost has been known to do damage. Protection may be provided by the firing of oil heaters or smudge pots scattered about the grove or by the kindling of bonfires. When the latter are employed, the wood logs and kindling are arranged ready for lighting several hours or days in advance. Then, when the thermometers, mounted in the coldest sections of the grove, indicate that the temperature has fallen to within one or two degrees of freezing, word is sent to the workers to go through the grove, pour kerosene on the prepared piles and ignite them. Seldom does freezing weather last more than one or two nights in Florida orange groves. When this occurs, the workers must constantly keep replenishing the fires.

Caretaker

The caretaker must be thoroughly familiar with and understand all types of grove work because, in addition to supervising common laborers and others working under him, he often has to perform some of the jobs himself. He supervises, inspects and plans the grove work in general. It is up to him to tell the spray hands when to spray and where and how much and the kind of solution to use. He must also exercise his judgment as to when to apply fertilizer and how many pounds per acre. He has complete charge of all hoeing, plowing, mowing, pruning, fertilizing, and spraying operations. A good caretaker should know what healthy trees and healthy fruit look like and what must be done to produce the desired results. An unusual amount of level-headedness and good judgment in matters of common knowledge are required. There is not a great deal of work to grove caretaking, if only the necessary work is done at the proper time!

The grove caretaker has complete charge of the fruit until it is picked and loaded on the truck. He is responsible only to the owner. As the owner's

agent, he makes all preliminary contacts and sells the fruit either by crop or by box for the best price he can get. Naturally he will insure that the packing house or the cannery gives full credit for quantity and kind of fruit as it is hauled out of the grove.

One capable caretaker can handle from 500 to 700 or 800 acres of bearing trees. He may be managing from one to a dozen different groves for as many different owners. Many large firms are specializing in this line of business on a large scale. On the other hand, many large corporations perform all production and marketing services for their grove owner members.

Owner

The nature of the work about a citrus grove has been briefly described in the above paragraphs. This includes all the main types of jobs involved. Obviously, groves vary in size all the way from a few trees in the back yard to hundreds of acres. Ordinarily the larger the grove, the more duties and responsibilities are turned over to others by the owner. If the owner lives in the north or elsewhere or if he has other activities that take up his time and attention, he hires a caretaker either full or part time (depending on the amount of work) to take care of his interests. Unless the owner can supervise the grove himself, it would perhaps pay him to select a reliable intelligent and honest caretaker.

If the owner has less than 50 acres, and is devoting all his time to his groves, he will probably be doing most of the work himself--with perhaps a few common laborers to help. But in this case he has assumed the role of caretaker himself, with all its attending duties.

OUTSIDE WORK WITH PACKING HOUSES

Usually a packing house, if it is of any significant size, will handle

the fruit from a number of groves. Many packing houses attend to the picking of fruit as well as the packing of it. The fruit is supplied by growers who negotiate with the packing house manager for the marketing of their crops. Occasionally a corporation or large grower will use a self-owned packing house for the handling of only its or his own fruit.

If prices are low due to a large supply already on the market, the packing house operator is unable to bid much for a crop and the grower might be tempted to wait in the hope of higher prices later. When an agreement is finally reached, the packing house manager notifies the foreman of groves that a particular kind and quantity of fruit of a certain grower is to be picked and when to begin picking.

Foreman of groves--

Packing houses generally have two foremen, one for inside and one for outside operations of the house. The latter is generally called the foreman of groves or the field foreman. If the corporation which owns the packing house also owns groves, it will be the job of the foreman of groves to care for and oversee in general the activities of such groves. In other words, he is head caretaker for the corporation. But if many groves are thus owned and operated, the foreman will no doubt have other caretakers working under him to relieve him of many smaller details and responsibilities. Sometimes a large packing house finds it necessary to employ several field foremen with divided responsibilities.

The foreman of groves has another and an equally important function to perform, the task of picking the fruit and bringing it into the packing house. A foreman may have one or more crews of pickers working under him. He may take on additional pickers or release some of the older pickers at will, depending upon the amount of fruit to be picked and the speed at which it is

to be delivered. He arranges for the transportation of his pickers to and from the groves, which may be as far distant as fifty miles from the packing house. Usually the pickers, with their picking bags and clippers (which they must furnish themselves) and the ladders (which the packing house furnishes) are loaded into empty hauling trucks and taken out to the scene of operations. At the end of the day, the crew rides back on top of the last load of fruit.

Several crews may be picking at the same time, each in a different grove or each in a different section of the same grove. A crew may range in size from six to thirty pickers. Working in conjunction with the pickers are the loaders who lift the loaded field crates onto the trucks, and the truck drivers, who transport the fruit to the packing house.

The foreman of groves must watch that green or immature fruit, or fruit of a kind and grade other than that specified is not picked. He indicates when the pickers should start their work. Heavy dew, fog, or rain may delay them for several hours. He keeps careful records of the quantities and kinds of fruit picked and checks these items with the grove caretaker and with the packing house foreman.

Picker--

The picker stands on the ground or a ladder or in the tree itself, picking the fruit from the tree and filling his picking bag to a load of from fifty to seventy-five pounds before emptying it into the field crates. Each fruit must be clipped from the tree, not pulled, in order not to tear or injure the pool.

The picker's equipment consists of a ladder, a pair of fruit clippers and a picking bag, all of which (except the ladder) he must furnish himself. The ladder is from fifteen to thirty feet long, light in weight but strong.

the clippers have rounded blunt points so that clipper jabs and cuts in fruit will be minimized. The large canvas picking bag is supported on wide straps around the neck. A buckled strap is attached underneath. When the bag is full, this strap is buckled over the top to keep the fruit from falling out as the picker descends the ladder and moves about. All picking is done by men. Certain sections of the state hire only negro pickers; others, only white pickers; while still others will have some white crews and some black crews--but rarely are white and black workers mixed in the same crew.

Loader-

The loader has the rather strenuous task of lifting field boxes of fruit onto trucks all day and arranging and balancing the load for travel. Another loader at the packing house helps unload the fruit when the driver brings it up to the platform. A still different type loader will help load the boxes of packed fruit onto cars or trucks for hauling to market.

Truck Driver--

The truck is driven down through the grove between rows to gather up the boxes as the pickers have filled them. Empty boxes are also carried by truck and strewn about the grove where needed. The driver must make sure that his load is well balanced and properly tied down. For hauling boxed fruit from the packing house to various markets and shipping terminals, special trucks and drivers are used. Such trips are usually much longer. The trucks are usually larger. To protect the carefully-packed product from the weather, the driver spreads a large tarpaulin over the load, tying it down securely and nailing the edges down with cleats to keep the wind from flapping and tearing the canvas.

Some drivers are authorized to sell their load of fruit at the market;



Courtesy- Dr. P. Phillips Co.

WATERING

others to collect the cash for a load already sold. In nearly every case the driver is bonded, that is, required to deposit a certain amount of money with the company as surety that he will not abscond with the truck or with some of the company's money.

JOBS WITHIN PACKING HOUSES

When the fruit arrives by truck at the packing house, it is taken off by boys skilled in the handling of boxes. Truckers then cart it around on two-wheel trucks to desired places within the packing house. All fruit is dumped into the soaking box - a tank containing a borax solution which acts as a preservative against stem-end rot and mold. After receiving this cleansing bath, the fruit is carried over moving rollers into a fresh-water spray or rinse. Then blasts of warm air from huge rotating fans quickly dry the fruit as it passes on rollers to the polishing machine. Here the fruit is juggled back and forth over rotating bristles to give polish and luster to the skin. Revolving, endless belts carry the fruit through a host of graders' hands and on toward the packing bins where automatic sizers shunt it into a series of bins according to size. Beside each bin a packer wraps the fruit in tissue paper and places it in shipping boxes. When covers are nailed on, the fruit goes into storage rooms on refrigerator cars. Many packing houses are equipped with precooling rooms for cooling fruit to a lower temperature before placing in the refrigerator cars.

Fully as much skill must be observed in transporting citrus fruits to distant market centers as in producing them and preparing them for sale. Citrus fruit is sensitive to heat as well as to extreme cold. On its long journey to market, each car of fruit is frequently checked by persons expert in judging the condition of the fruit.

Fruit is kept within the packing house only from 24 to 72 hours, unless

it is sent through the coloring room. This process will require an additional 6 to 90 hours.

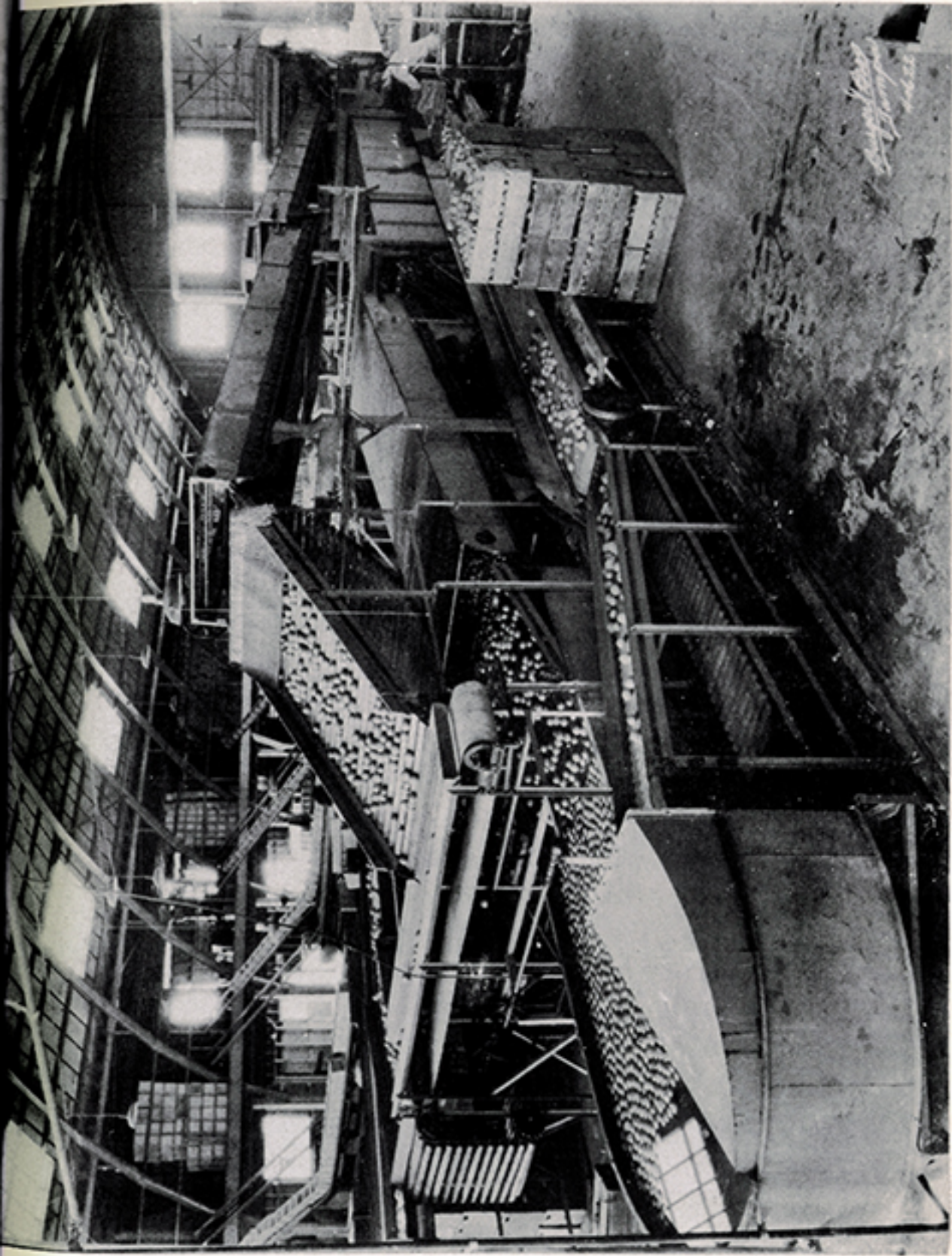
The processes to which citrus fruit is subjected have been added to from time to time. The following have been developed within the last two decades:

- Borax treatment (before coloring)
- Oil stove coloring
- Ethylene gas coloring
- "Color-Added"
- Waxing
- Machine polishing.

There is a tendency towards larger packing houses brought about by good roads and trucks, by improved types of packing house and field machinery, by a more uniform grade and pack of fruit, by improved marketing facilities, and by the integration and strengthening of the industry as a whole.

As to the type of workers in packing houses, both men and women and white and colored workers are employed. Many companies have the rule that only one person in each family can work in the packing house. In general, women do most of the packing, both men and women grade, both men and women work in offices, but practically all other jobs are performed by men. Women started working in packing houses during the World War, but not until the boom time and since have they become a significant element of labor. Approximately half of all women workers are married. Negroes are used to load trucks, sometimes to drive trucks, occasionally they are employed as handy men about the buildings and grounds, and in a few instances they have packed fruit.

Workers are roughly divided 50-50 between inside and outside jobs with packing houses. Many workers are transient and follow the tomato and apple and strawberry crops. Local workers are hired as much as possible and in many places only the local residents are able to get jobs.

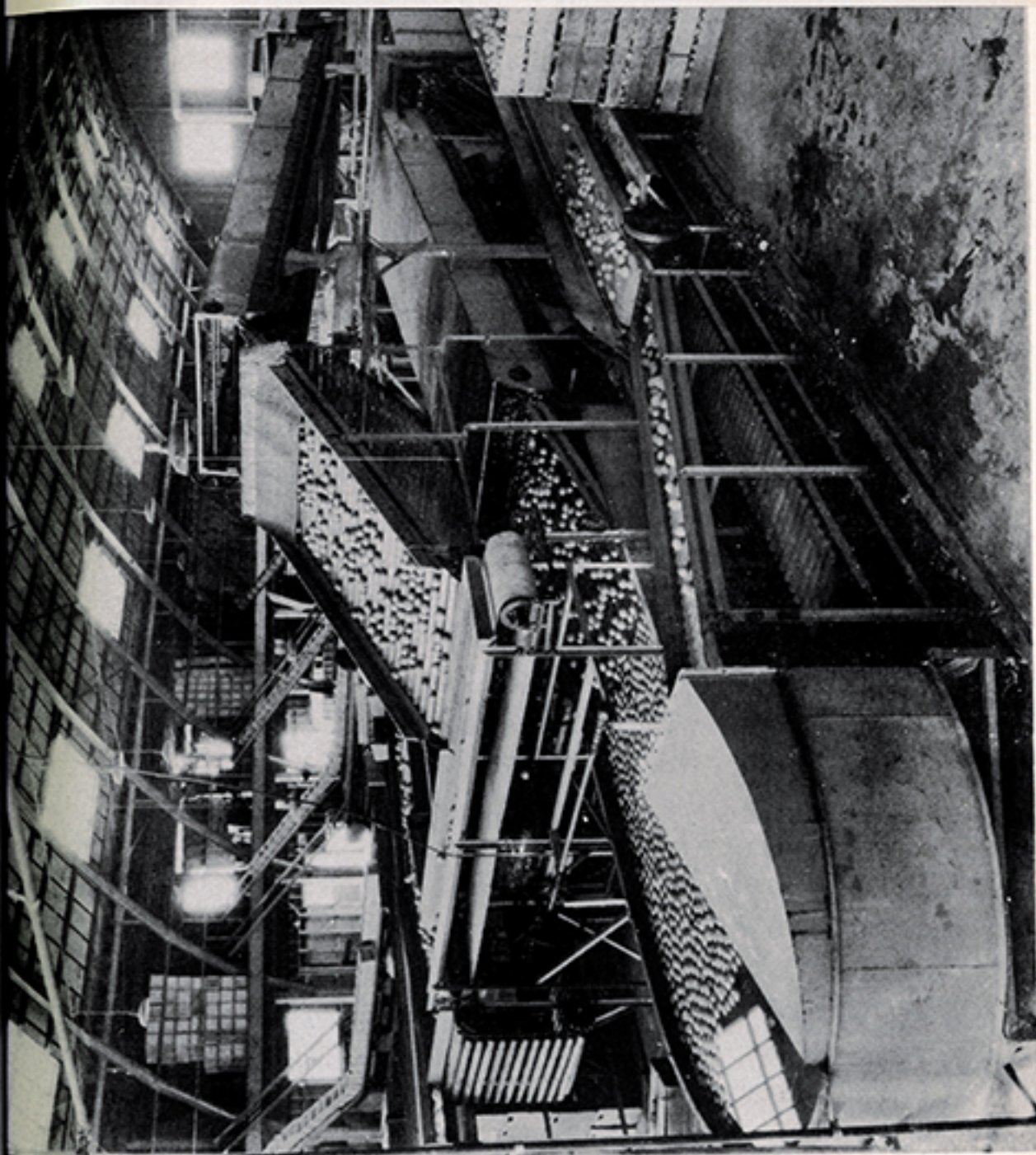


PACKING HOUSE INTERIOR

Courtesy- Florida Citrus Exchange

INTERIOR VIEW SHOWING SOME MACHINERY IN PACKING HOUSE

This picture shows the conveyor built for moving citrus when first brought to packing house into the cylindrical machine for washing the fruit. On the washing machine, the fruit passes through the drying machinery, ramping machinery, color-adding process and polishing machinery. The fruit finally returned to the bins in the left of the picture (not visible) from which they are packed by skilled workers in the boxes which are visible.



Courtesy- Florida C.

PACKING HOUSE INTERIOR

The principal jobs within a packing house may be classified as follows:

Trucker	Checker
Dumper	Precooling operator
Grader	Loader
Packer	House Mechanic
Box boy	Night Watchmen
Mailer	Foremen
Box maker	Office worker
Grade & Pack inspector	Manager

The nature of the work for each of these jobs will now be described and an attempt made to follow the processing of fruit through the packing house.

Trucker--

The job of trucking is perhaps one of the hardest in the packing house, physically speaking. It requires little training or experience. A strong back and ability to follow simple instructions is all that is needed. This is a typical beginning job within a packing house. But in trucking fruit about the house, an alert worker will soon become acquainted with various activities about him and can switch over to the more desirable jobs of checking, grading, packing, nailing, etc., when opportunities present themselves.

Dumper--

After loaded field crates have been taken from the trucks and stacked inside the packing house by the truckers, a man called the "dumper" carries them one by one over to a broad canvas belt, kept constantly moving. Here the fruit is spilled out slowly on the belt. The dumper soon gets accustomed to how many the machine will handle without piling up. It is his task to keep a steady stream of fruit flowing down into the washer, from where it is automatically conveyed on through the dryer, the polisher, and the "color-added" machinery to the grading belts.

Graders--

Graders are highly skilled manual workers. They must know fruit

roughly. They stand at their work, stationed along a 30-inch, moving belt, at-high, sorting the fruit out according to the approved and recognized grades.

The United States standards for citrus fruits, as adopted by the United States Department of Agriculture, Bureau of Agricultural Economics, have been in effect since September 1, 1936 in the form shown below:¹

U.S. No. 1 shall consist of citrus fruits of similar varietal characteristics (1), which are well colored (2), firm (3), well formed (4), mature and of smooth texture (5), free from ammoniation, bird pecks, bruises, buckskin, creasing, cuts which are not healed, decay, growth cracks, scab, split navels, sprayburn, and undeveloped or sunken segments, from injury (6), by black or unsightly discoloration (6 and 7), green spots (6a), rough and excessively wide or protruding navels (6b), scale (6c), scars (6d), thorn scratches (6e), and from damage (10), caused by dirt or other materials (10), dryness (10c), sprouting (10) sunburn (10i), disease, insects or mechanical or other means (10).

In this grade not more than one-tenth of the surface in the aggregate may be affected with discoloration.

U.S. No. 1 shall consist of citrus fruits of similar varietal characteristics (1) which are fairly well colored (8), firm (3), well formed (4), mature and of fairly smooth texture (9); free from bruises, buckskin, cuts which are not healed, decay, growth cracks, spray-burn, undeveloped or sunken segments, and from damage (10) caused by ammoniation (10a), bird pecks (10) black or unsightly discoloration (7 and 10), creasing (10b), dirt or other foreign materials (10), dryness (10c), green spots (10), scab (10e), scale (10f), scars (10g), split or rough or protruding navels (10h), sprouting (10), sunburn (10i), thorn scratches (10j), diseases, insects or mechanical or other means. (10).

In this grade not more than one-third of the surface in the aggregate may be affected with discoloration.

U.S. No. 2 shall consist of citrus fruits of similar varietal characteristics (1) which are mature but may be only slightly colored

1. Taken from the ANNUAL REPORT OF THE FLORIDA CITRUS INSPECTION BUREAU FOR SEASON OF 1936-1937, prepared by Nathan Mayo, Commissioner of Agriculture and J. J. Taylor, State Chemist.

(11), fairly firm (12), slightly misshapen (13) and slightly rough (14) but which are free from bruises, cuts which are not healed, decay, growth cracks, and from serious damage (15) caused by ammoniation (7 and 15), buckskin (15b), creasing (15c), dirt or other foreign materials (15), dryness (15d), green spots (15e), scab (15f), scale (15g), scars (15h), split or rough or protruding navels (15i), sprayburn (15j), sprouting (15), sunburn (15k), thorn scratches (15l), undeveloped or sunken segments (15m), diseases, insects, mechanical or other means (15).

In this grade not more than 40 per cent, by count, of the fruit may have in excess of one-third of the surface in the aggregate affected with discoloration.

U. S. COMBINATION GRADE. Any lot of citrus fruits may be designated "U. S. Combination" when not less than 40 per cent, by count, of the fruits in each container meet the requirements of U. S. No. 1 grade and the remainder U. S. No. 2 grade, provided that not more than 25 per cent, by count, of the fruits in any container may have in excess of one-third of the surface in the aggregate affected with discoloration.

U. S. No. 3 shall consist of citrus fruits of similar varietal characteristics (1) which are mature; which may be misshapen (16), slightly spongy (17), rough but not seriously lumpy for the variety of seriously cracked; which are free from cuts which are not healed and from decay; and from very serious damage (18) caused by bruises, growth cracks (18a), ammoniation (18b), bird pecks (18c), black or unsightly discoloration, caked melanose (18d), buckskin (18e) creasing (18f), dryness (18g), green spots (18h), scab (18i), scale (18j), split navels (18k), sprayburn (18l), sprouting, sunburn (18m), thorn punctures (18n), disease, insects, mechanical or other means. The fruit may be poorly colored but not more than 25 per cent of the surface of each fruit may be of a solid green color.

As fruit is sorted out by grades, it is tossed from the main grading belt onto a series of smaller belts, one for each grade--usually No. 1, No. 2, No. 3, and culls. The culls are carried to the outside of the packing house, where a boy loads them into boxes for carting away. The good fruit is carried by moving belts along the ends of the rows of packing stands and then diverted down these rows. A different grade goes to each row or to each two or three rows, depending upon the amount of fruit in that grade. As the fruit rolls down on tilted runways, it drops out on the side through a series of adjust-

able openings. These openings grow progressively larger and larger as the fruit rolls farther and farther down the row. Below each opening is a packing bin, approximately four or five feet square and from one to three feet deep. Only the smallest size (342's) will be able to drop through into the first bin, the next size (288's) into the second bin, and so on until the largest size passes through the largest opening into the last bin.

A new grader is placed alongside an older worker until he gets enough experience of his own. The best graders are stationed last along the grading belt so that their more accurate and discriminating judgment of fruit will be utilized. Less experienced graders are used first to separate the more obvious grades.

Graders may be either men or women, depending upon the policy of the individual packing house. Some foremen prefer women because they think women are naturally a little bit quicker and more deft with the hands and probably more conscientious about grading than men. Women are not as inclined to leave the grading belt for snacks as are men, and this is an important factor for the fruit is ever moving and needs constant attention. Others prefer men so that, in cases of emergency, they can be shifted to any other job in the house requiring immediate attention. Most of the other jobs, except packing, are heavier than can be satisfactorily handled by women.

Graders must be able to keep their minds on their work for it becomes very monotonous. Even with the best possible lighting arrangements, there is a constant strain on the eyes and many of the packing houses have poor light. If the packing house foreman finds any defects or careless grading among the packed boxes, he comes back to the grading belt and checks up on the graders.

The approval of State inspectors and even the continued good will of

the consuming public depends largely on the quality of work done at the grading belt. Therefore, only the good graders are kept very long. In the process of shifting workers around where needed, a worker with a quick hand and eye is generally shifted to the grading belt. Many workers who are unable to do hard labor, such as trucking and loading, have sometimes made excellent graders.

Packer--

One packer works at each bin. Most packing houses employ women packers entirely, although some hire both men and women and occasionally a situation is found wherein only men packers are used. But even among the houses which prefer only women packers, a male employee can usually secure permission to pack fruit a month or two if he manifests a sincere ambition to gain first-hand experience in all the various activities about a packing house.

The box is placed on a convenient stand at a corner of the bin. Many packing houses now have automatic packing stands which rest on small wheels and support the box while being packed. As soon as it is filled, the packer marks it with his stamp so that the checker will give him credit for the packing, and rolls it over to the nailing chain. A foot lever releases a spring which helps slide the box from the stand onto the nailing chain with very little effort on the part of the packer. So easy are these stands to manipulate that any woman packer can swing her own box of fruits onto the nailing chain as fast as she completes it, without waiting for a box boy to lift it over for her. This saves time for the packer and saves the hiring of another employee for the owner.

Fruit is not packed by whim or guesswork or in a haphazard fashion, but

in a precise, scientifically calculated manner according to the approved and recognized plans that have been added and standardized throughout the industry. To insure correct count in each box, citrus fruit is packed by size requirements, as follows: 96's, 126's, 150's, 176's, 200's, 216's, 250's, 288's, 324's for oranges, and 26's, 46's, 54's, 64's, 70's, 80's, 96's, 128's, for grapefruit. These figures merely indicate the number of pieces of fruit in each box, i.e., a box of 36's contains 36 grapefruit, while one of 324's holds 324 oranges. The arrangement of layers of fruit within the box has been carefully worked out by Dr. Harold Hume of the University of Florida so that economy of space and attractiveness are obtained.

Packers must learn the exact packing arrangement for each size. Every piece of fruit has a definite place to go. The bulge pack is used with all standard boxes. With the bulge pack arrangement, the fruit at the top center of the box bulges up from a minimum of $3/4$ inches for tangerines and $1-1/2$ inches for oranges to 2 inches for grapefruit. When the lid is nailed on, it is bulged up in the middle, while being nailed down level with the top sides of the box at each end. The center piece of the box extends above the sides and supports the lid so that it will not crush the fruit. This gives a more attractive appearance to the box.

Unlike the fruit in standard boxes, the fruit in Bruce boxes is never wrapped. A Bruce box is slightly larger than a standard box, has no center piece and no bulge at the top, and the lid is wired down instead of nailed. By far the chief customers for Bruce boxes are the chain stores. These stores dump fruit out on piles for display purposes and hence do not want the fruit wrapped. Paper wraps are only in the way and add to the expense. Chain stores usually buy f.o.b. and pay a low price for their fruit. They are also

the principal customers for bag fruit. But the swing seems to be back to cruce boxes.

Packers rotate from bin to bin, every hour or every day, so that no one worker will have the unfair advantage or disadvantage of packing the same size each day. The smaller the size of the fruit, the longer amount of time will be required to pack a box and the less money will be earned.

Most persons can learn how to pack fruit. But speed will come only with practice. Some packers pack as much as 100 boxes a day. The average is around 50 boxes. Today, practically all packing is done by women. Negroes occasionally, but seldom any more, pack fruit. Formerly, they were hired in Manatee County for packing citrus and tomato crops.

Box Boy--

Most houses have box boys to lift boxes of fruit from the packing stands onto the nailing chain. As they do this, they punch the packer's card to give credit for the packing. This work is tending to be done away with by the use of automatic box-packing stands which enable women packers to move their own boxes. Box boys must also keep the packers supplied with empties so that the latter will not have to lose time, and see that plenty of tissue wraps of the proper kind are kept on hand at each packer's bin. The job of box boy, like that of trucking or loading, is a beginning job.

Nailer--

Although a few of the latest packing houses, such as the Dr. P. Philips Company in Orlando, now have nailing machines that operate up and down on trucks at the end of the packing bins, most of the nailing of lids is still done by hand. Nailing machines are quite expensive--about \$1500--but during the experimental season of 1937-38 have proven quite successful. Since they

have given ample evidence that they can readily pay for themselves, the next few years should see quite a few of them adopted and put into use. It takes two men to operate it: one to take care of it and feed it with un-nailed boxes from the nailing chain, and the other to set the boxes off. With the aid of such a machine, two men can handle all the nailing of any size packing house whereas, by hand-nailing, two men can just barely handle three chains. When grapefruit is being run through, the work is much faster and extra helpers are usually needed.

As fast as a packer completes a box of fruit, it is placed on the nailing chain and moved down to the nailer who works at the end of the packing bins. The nailer places the lid on top, holds the ends down in place by the use of a box-press, or lidding machine, and quickly nails down the lid, four nails in each end. A narrow strip of tin is then drawn over the middle of the lid and nailed down on each side. The nailer soon acquires skill at clamping down the lid without crushing the fruit and at nailing.

Box-Maker--

Box-making today is all performed by machine. Young boys usually operate them, because they are quite simple to handle. Originally a good worker could make only from 400 to 500 boxes a day. A skillful box-maker today can make ^{from} 2,000 to 3,000. This means that he is often working only part time at the job of box-making, and the remainder of the time he must either be transferred to some other work within the packing house or remain idle. Usually, however, there are enough other activities connected with boxes such as unloading and stacking the pieces from the car, stamping the name of the packing house on the sides or gluing brand labels on box ends to keep the box-maker busy.

Grade and Pack Inspector--

Among the larger packing companies may be found a grade and pack inspector who moves about the house, along the grading belt, and up and down the packing stands, inspecting the work being done by the employees and seeing that it keeps up to certain minimum standards of the company. These standards are often higher than those of the citrus inspection bureau of the State. The packing house foreman is too busy to personally inspect the quality of packed boxes. The grade and pack inspector, who has a thorough knowledge of fruit and various kinds of packs, performs this work for him. In nearly every case a man is given the job.

Checker--

The job of checker is one of the most desirable jobs about a packing house. The checker must know fruit thoroughly. He watches it being packed, nailed, and trucked to the coolers or to the cars and makes detailed notations on slips of paper. These slips are turned over to the sales manager so that the latter will have definite facts and information to guide him in his work. For example, the checker observes whether the fruit is dark-skinned or pale, whether it is firm and healthy or soft and unable to carry far in shipments. He makes any comments occurring to him which he thinks might give the sales manager a more accurate idea as to the exact condition of the fruit he is trying to sell. Merely to designate a box of fruit as U. S. No. 2 grade, size 253, is not adequate for the most satisfactory results.

A checker works hard and long. He must be quick and accurate with figures. He keeps the sales manager constantly posted as to the exact number of boxes of fruit of each kind, grade and size on hand and ready for shipment. Also, how each lot of fruit is disposed of, that is, whether it is placed in

the pre-cooling rooms or directly in trucks or cars.

Pre-Cooling Operator--

After the fruit is packed and ready for shipment, it is sometimes sent to the pre-cooling rooms where the field heat is removed before loading into refrigerator cars. Experience has shown that by cooling the fruit before placing it in the iced cars, the expense of icing the cars has been greatly reduced. The operator of the pre-cooling rooms regulates and watches the temperatures. Seldom is citrus fruit pre-cooled if it is not going to be placed directly from the pre-cooling rooms into the refrigerator cars and kept cool until it reaches the market, because, strangely enough, when citrus fruit comes in contact with air at normal temperature after it has been thoroughly cooled, it does not seem to keep as well as fruit that has never been cooled at all. Many packing houses, including some of the large ones like Chester P. Fosgate Packing Company in Forest City, Florida, make no provision for pre-cooling, preferring instead to ship the fruit on to nearby markets or to cold storage plants at Jacksonville, Tampa, etc., as rapidly as it is packed.

The coloring rooms are used, if at all, when the fruit first enters the packing house. All fruit must go through the tank of methbor or borax solution before anything else is done with it. And then, if the fruit is green or greatly lacking in color it is sent to the coloring rooms to improve the appearance. Some houses, such as the Vaughn-Griffin Packing Company at Howey-in-the-Hills, Florida, use the fumes from kerosene burners to color the fruit. But most houses use ethylene gas. The kerosene fumes or gas is forced through the rooms in small quantities by large fans. Every six hours, the doors are opened and the foul air blown out. Then the rooms are again heated and gassed. The temperature is maintained at approximately 85°F. Fruit may

stay in the coloring rooms from 36 to 90 hours, depending on the appearance of the fruit originally and on the amount of coloring desired. The operator marks down on a card the hour when the fruit enters the coloring rooms and keeps constant watch over it. The equipment used in packing houses today and the instruments that have been perfected for indicating temperature, humidity, and air purity have greatly simplified the work involved in coloring fruit. In fact so automatic has this job become that in many houses no special operator is hired. Either the house mechanic or else the foreman himself supervises the operations.

A certain amount of technical skill and training is needed. A college education, especially one specializing in engineering, is quite helpful. Often a worker is transferred from a job in the ice plant (if there is an ice plant) or from the job of packing house mechanic to that of pre-cooling operator.

Loader--

The loader at the packing house takes the boxes of fruit as it is brought to him by truckers and carefully stacks it inside the truck or freight car which has pulled up beside the loading platform at the edge of the packing house. Boxes are placed on end and long cleats nailed across the top to prevent sliding and shifting during transit.

House Mechanic--

The house mechanic is the technician and general repair man about the packing house. He takes care of machinery, oiling it, cleaning it, and replacing parts when needed. He mends broken or frayed belts. A good understanding of the principles of mechanics and the operation of modern machinery

is essential. Of course for major breakdowns, the mechanic will have to call in outside help. He should know not only the load factors for each machine, but how fast each may be operated with safety and efficiency.

Sometimes a man is engaged who has a special gift or knack or ability to make things out of metal for special purposes. Such a man comes in very handy around a large packing house. And he can save the company a lot of expense and annoyance and time by ingenious devices rigged up when needed.

Sometimes a negro worker is employed as handy man around the building or the garage. But the packing house mechanic has charge over all these extra helpers.

Night Watchman--

The night watchman has the responsibility of guarding the property and assets of the company from the time the other workers leave in the evening until they return next morning. His hours are long but the work is easy and he has very little to do except patrol the grounds and buildings and perform various sorts of routine inspections. He must watch the coloring rooms. And he covers up any fruit that has been left out on the floor.

Foreman--

The job of foreman in a packing house is probably the most difficult and the most demanding of all jobs except that of manager. A foreman must know thoroughly every job and every process in the packing house so that, if necessary, he will be able to show how they ought to be done. It is not necessary that he personally work at every job, but he must have gained understanding and familiarity with every job, whether through observation, through talking with men who do know the work, or through some other method equally

effective.

A foreman must have a vast amount of experience, and this usually requires considerable time.

He establishes all grades used by the packing house.

He sees that dumpers keep the fruit moving and that graders are kept busy, that fruit is distributed equitably among the packers and that the checker knows where the fruit is going after it is packed.

He keeps tabs on incoming fruit and on outgoing shipments.

He keeps contact with the sales manager and with the field foreman.

He has to know fruit thoroughly and, like an expert grader, be able to look at an orange and tell just what kind, size, and grade it is. He must be able to look at a box of oranges and tell if it has been properly packed and whether any of the sizes have been mixed.

He must gain the confidence and respect of employees working under him. The psychology of handling people is as important here as in any other job of foremanship. This suggests the desirability of an understanding of personnel administration. He sees that his workers are kept busy and happy, that their work is made as pleasant as possible.

Sometimes a large packing house will have two packing house foremen. A foreman will be at one end of the building in charge of grading, packing and storing, while at the other end of the building, there will be another foreman in charge of receiving, coloring and treating of fruit.

Office Workers--

The office jobs in a packing house differ little, fundamentally, from the office jobs in other business establishments. They are chiefly concerned with typing, taking dictation, sending out letters and telegrams, handling

outine correspondence, keeping books and records and office files. Administrative affairs of a packing house must be handled in a businesslike way and the most efficient and economical devices must be employed.

Most office employees work the year round. It is not essential that they know citrus fruit or have experience with citrus operations. Many workers do, however, work into office positions from jobs out on the floor of the packing house. An ambitious boy keeping box records out on the floor, if he shows promise, may be taken into the office.

The more common office jobs are those of bookkeeper, stenographer and shipping clerk. Other jobs are frequently found in the form of sales manager, traffic manager, buyer, and receiving clerk. These will be dealt with in very brief fashion.

BOOKKEEPER.

The bookkeeper has charge of the books of account. These are merely tools for controlling details of the business. Profits are made in the field, on the floor of the packing house, and in auction and trading markets. The bookkeeper helps the manager make larger profits at these points, by relieving him of details and giving him needed facts so that attention can be focused where needed. A complete record of every box of fruit is kept from the time of picking until final disposition in retail markets. One grove may have as many as thirteen varieties of fruit. A complete record is kept of every variety. Records must also be carefully kept of each worker's time or number of units of work done, and of amount of wages or salary he earns.

STENOGRAPHER

The stenographer's job is not difficult to learn, being similar to stenographic jobs in any other industry. Trade jargon and special terms

and practices peculiar to the citrus industry can soon be learned.

SHIPPING CLERK. The shipping clerk has charge of all shipments of fruit out of the packing house. He keeps records of volumes of shipments and destinations and methods of shipment.

SALES MANAGER. In larger houses, the sales manager takes over certain portions of the shipping clerk's duties. He contacts markets, advertises his company and its brands of fruit, and seeks to build up the volume of fruit shipped. He keeps informed on market prices and needs and trends. He encourages new uses for citrus fruits and the development of profitable by-products.

TRAFFIC MANAGER. One of the newest, yet most promising, jobs in the citrus industry is that of traffic manager. The citrus industry as a whole is probably far from being overcrowded. Yet because of faulty distributing methods, certain large cities and sections of the country give the impression that overproduction prevails. Under the present set-up, too much fruit goes to big cities at the total neglect of many small towns. The traffic manager attempts to remedy this situation. He works unceasingly to furnish a more equitable system of distribution by diverting cars in transit to the most favorable markets throughout the country, and even through the world.

He also files claims against railroad, steamship and trucking companies for delay in arrival of cars, for breakages, for failure to maintain refrigeration contracts, etc.

The traffic manager must be thoroughly familiar with routes, rates, diverting possibilities, and markets. The need for this kind of job has developed only during the last few years and is peculiar to this and a few similar industries. The traffic manager works in conjunction with the sales

manager. He is directly responsible to the manager.

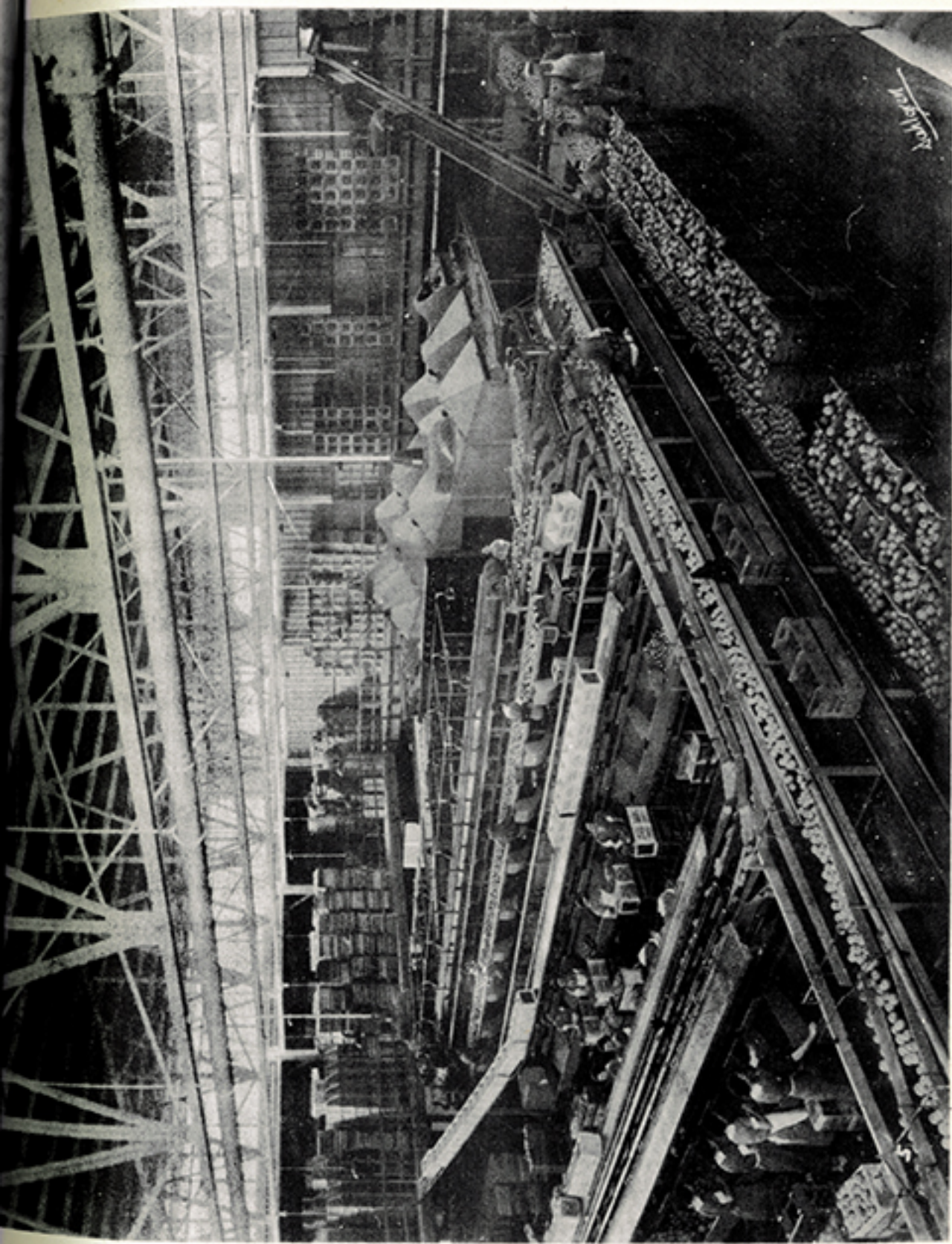
BUYER. The buyer has authority to go out and look over crops of growers and buy for the packing company. Naturally he must know fruit thoroughly, and be able to estimate closely the amount of fruit on trees.

RECEIVING CLERK. The receiving clerk is really an office worker but he spends most of his time out on the floor of the packing house. He checks the time of departure and arrival of trucks, loads brought in or carried out, and where to or from.

Manager--

The packing house manager is an association's chief executive in the packing house. The packing house foreman supervises all the floor labor and operations inside the packing house. The field foreman supervises all outside labor and operations. But over both foremen and over all the office help is the manager. Upon the shoulders of the manager rests the responsibility for the adopting of policies, the approving of methods, the issuing of orders, the planning of operations, and the reviewing of results. By the exercise of his judgment and the display of his leadership, he determines the continued success or the failure of the business. The owners who hire him will usually look upon the results which he produces as evidence of his ability or lack of ability.

The degree of executive ability needed by a manager depends on the size of the packing house and the volume of business handled. In smaller houses, he directs the sales operations. But in larger organizations which have several packing houses, the selling and marketing of fruits is handled by a separate division so that the manager's responsibility ends as soon as the fruit is placed in the car. In the smaller organizations, he personally

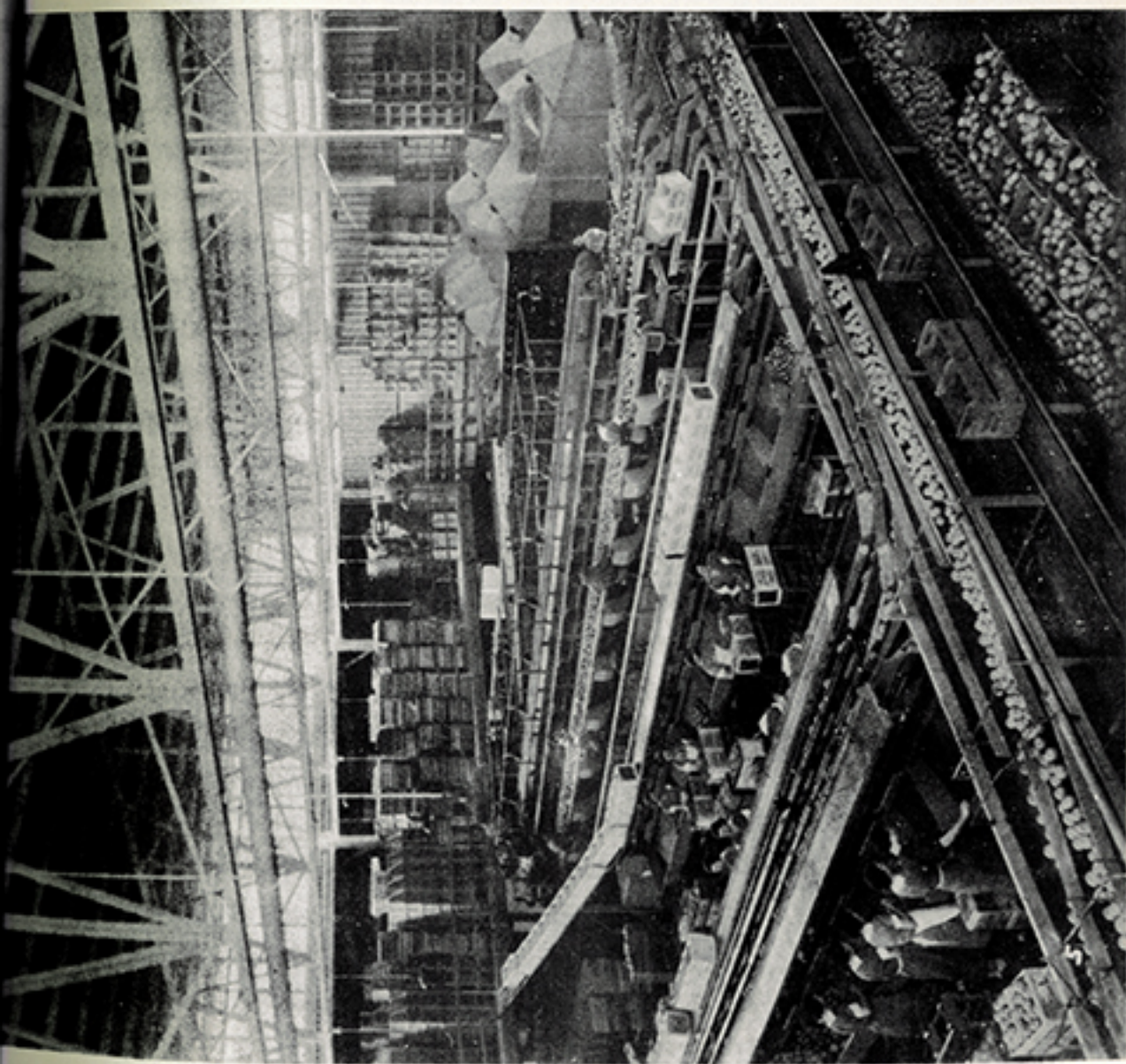


PACKING HOUSE INTERIOR

Courtesy- Waverly Growers Coop.

INTERIOR OF PACKING HOUSE

In the lower right corner, fruit in field crates standing in front of the dumping belt, which may be seen loaded with fruit, carrying it to the washer in the center, right. From there, the fruit travels for sixteen and one-half minutes through the washing, waxing, drying, polishing and grading processes to the packers' bins. The double grading belt may be seen in the center of the picture and several graders seated at work. Stamping machines, which stamp the brand on each individual fruit, are clearly seen between the end of the grading belt and the distributing belt, which runs at an angle from right center to lower left. Sizing and packing are shown in this picture, as well as the stacked crate material on the mezzanine floor. From lower center to upper right, the field crates, after being emptied, are being carried on a canvas conveyor belt out of the packing house for their return to the field.



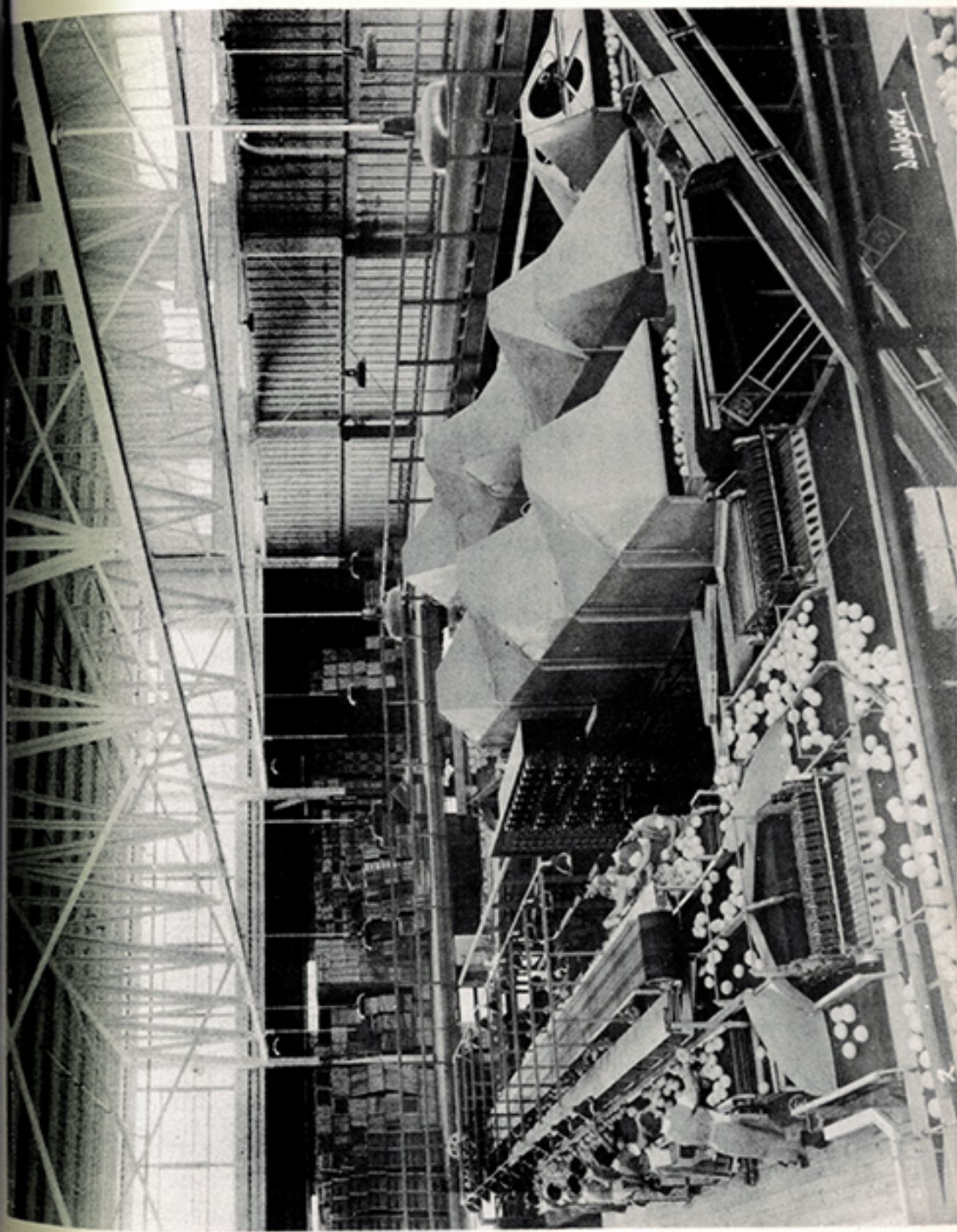
Courtesy:

PACKING HOUSE INTERIOR



PACKERS AT WORK

Courtesy- Waverly Growers Coop.

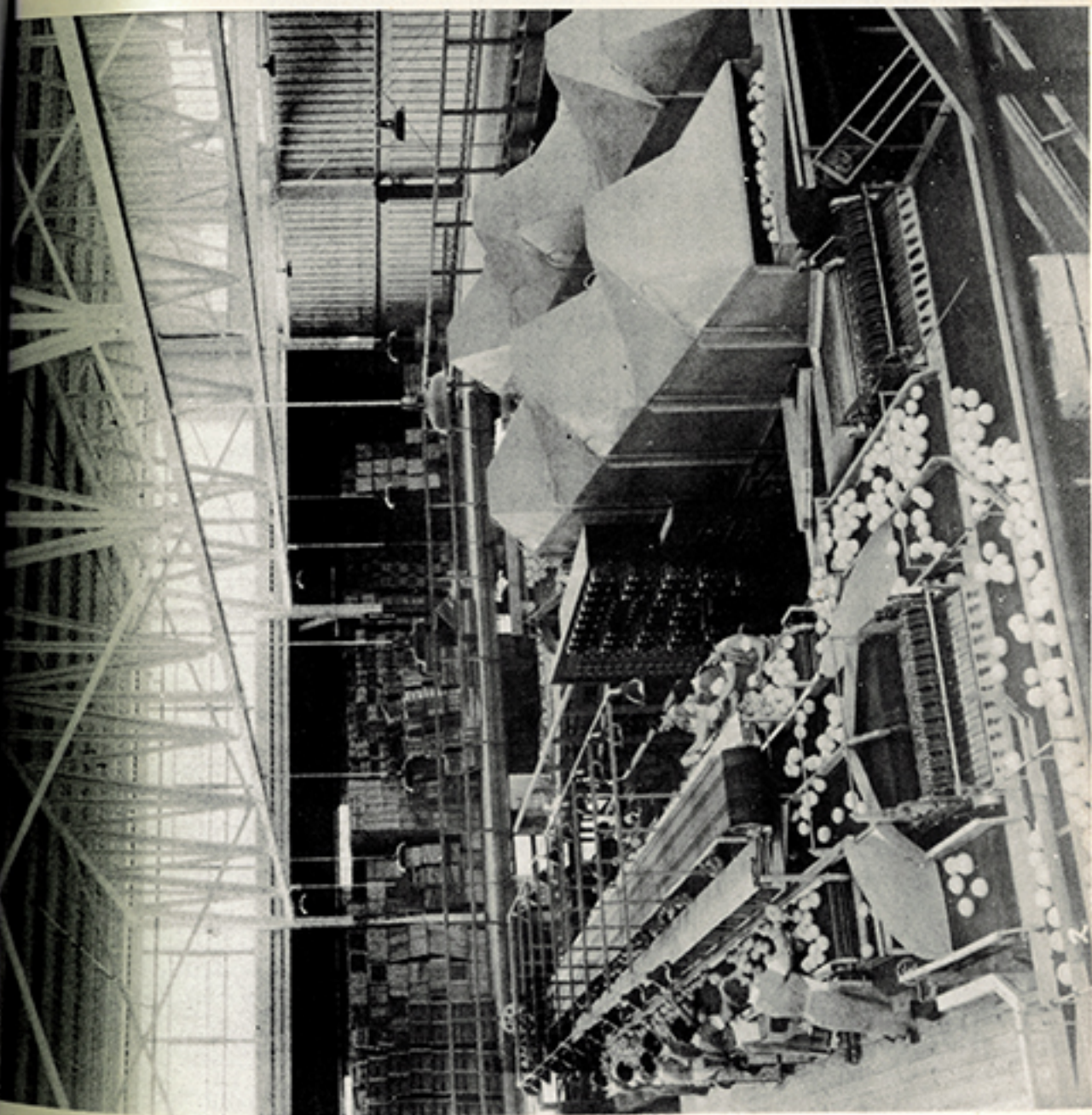


PACKING HOUSE INTERIOR

Courtesy- Waverly Growers Coop.

ANOTHER VIEW, INTERIOR PACKING HOUSE, SHOWING CERTAIN
PICTURES IN PACKING HOUSE.

Close-up view, on the left, of the grading belt, stamping machines and end of the distributor belt. Driers, with their fans, are shown at the right and center. Stamping machines are quite in evidence in this picture, as is, also a field crato at the right, finding its way outside to return to the grove.



Courtesy- Way

PACKING HOUSE INTERIOR



POLISHING FRUIT

Courtesy- Waverly Growers Coop.

PACKING HOUSE INTERIOR SHOWING POLISHING BUFFERS
IN THE FOREGROUND



Courtesy- Waverly

POLISHING FRUIT

directs all office employees. In larger organizations with several packing houses, there will probably be a manager in charge of each house and responsible to the general manager.

Either directly, or through the field foreman, the manager makes contracts with growers and negotiates various kinds of agreements as to the handling of their crops. In this way, he develops the tonnage or builds up the volume of business for the packing company.

State Employees in the Citrus Industry in Florida

Citrus Inspection

Besides workers in groves, packing houses, canning plants, and some miscellaneous types of workers, there are over two hundred full-time state employees engaged in the citrus industry working under the Citrus Commission. There were 52 employees of the State Plant Board devoting part-time to citrus inspection (1937). In general they are grouped into four groups.

Citrus Inspectors

In 1937, the State of Florida had 207 of these men working and paid by the State. A few were working part time. One part-time worker was paid \$9.68 in 1937. The typical salaries for full-time inspectors were as follows:

Group 1	Typical salary	\$100.00 per month
Group 2	" "	125.00 " "
Group 3	" "	150.00 " "
Group 4	" "	175.00 " "

In addition to these major tendencies there were part-time workers paid \$14.52 per month. Still others received salaries such as \$29.03, \$33.87, \$43.55, \$62.90, \$72.53, \$116.13 per month.

Among workers in the inspection service (1937) were 24 persons listed as

road guards whose salaries ranged from \$100.00 to \$150.00 per month. Fourteen were listed as supervisors and received \$175.00 per month. Fourteen employees were listed as clerks, secretarial and manual workers.

The service employed a chemist at \$175.00 per month, a grade supervisor and a laboratory inspector each with a salary of \$175.00 per month.

Citrus Commission

In 1937, the Citrus Commission had a staff of ten persons chief of whom was the secretary (executive officer) at \$350.00 per month. Three field agents at \$150.00 per month, an attorney at \$250.00 per month, and a few clerical workers completed the staff.

Citrus Advertising Fund Staff

This is another small group of state employees in the citrus industry. There was a staff of eleven in 1937. Five were listed as "Sales Promotion," three as stenographers, one as an auditor, one as a clerk, and one as a publicity director. The staff other than clerks and stenographers received salaries varying from \$150.00 to \$250.00 per month.

The full-time state employees, therefore, are in three separate groups as follows: (1) Citrus inspection service; (2) Citrus commissioner; and (3) Citrus advertising fund services.¹

Inspection Directed by the State Plant Board

Besides the above described workers, there are also inspectors employed by the State Plant Board. From the State List of Employees of March, 1937,

1. Lee, J. M. Supplement to Report of Comptroller of the State of Florida, June 30, 1937, List of Employees for the month of March, 1937. See pages 111, 114, 115-120.

the following information is taken:

1. Nursery and assistant nursery inspectors - 8 in number, salaries ranged from \$200.00 to \$350.00 per month.
2. Grove inspectors - 44 in number, salaries ranged from \$150.00 to \$350.00 per month.

These inspectors have duties in other lines than inspection of citrus, but reports of the State Plant Board indicate that inspection with reference to eradication of pests and spray application constitute their major duties. They also make certain reports, serve as witness in cases of law enforcement, and attend to varied miscellaneous duties.

Such inspectors must be persons of more than ordinary intelligence, have special education for their work, and possess the qualifications requisite to working with people who may, or may not, be antagonistic to them.¹

Inspection under the direction of the Citrus Commission includes duties designed to assure standard conditions as to quality, ripeness (maturity) size, color and color-adding, size and conditions of containers, and enforcement of standards. (See standards stated above.)

These workers exercise their functions under the authority of several state laws and under the immediate direction of the Citrus Commission mentioned above. The general statute known as the Citrus Commission law was enacted in 1935 and again in revised form in 1937.² Additional provisions

-
1. List of Employees March, 1939, pp. 142-143. J. M. Leo, State Comptroller, Tallahassee, Florida. Also Report of State Plant Board of Florida, for June 1, 1934, June 30, 1936, pp. 15-26, January, 1937.
 2. See Laws of Florida Chapter No. 16854, Acts of 1935, and Chapter No. 17775, Acts of 1937. Also Annual Report of Citrus Inspection Bureau, 1936-1937, pp. 5-16.

were enacted in Chapter No. 16863, Acts of 1935.

The Citrus Advertising Fund Staff has the duties of administering the citrus advertising laws.¹ This work attempts to promote better marketing conditions for Florida citrus fruits and products and is administered by the group referred to above as the Citrus Advertising Fund Staff.

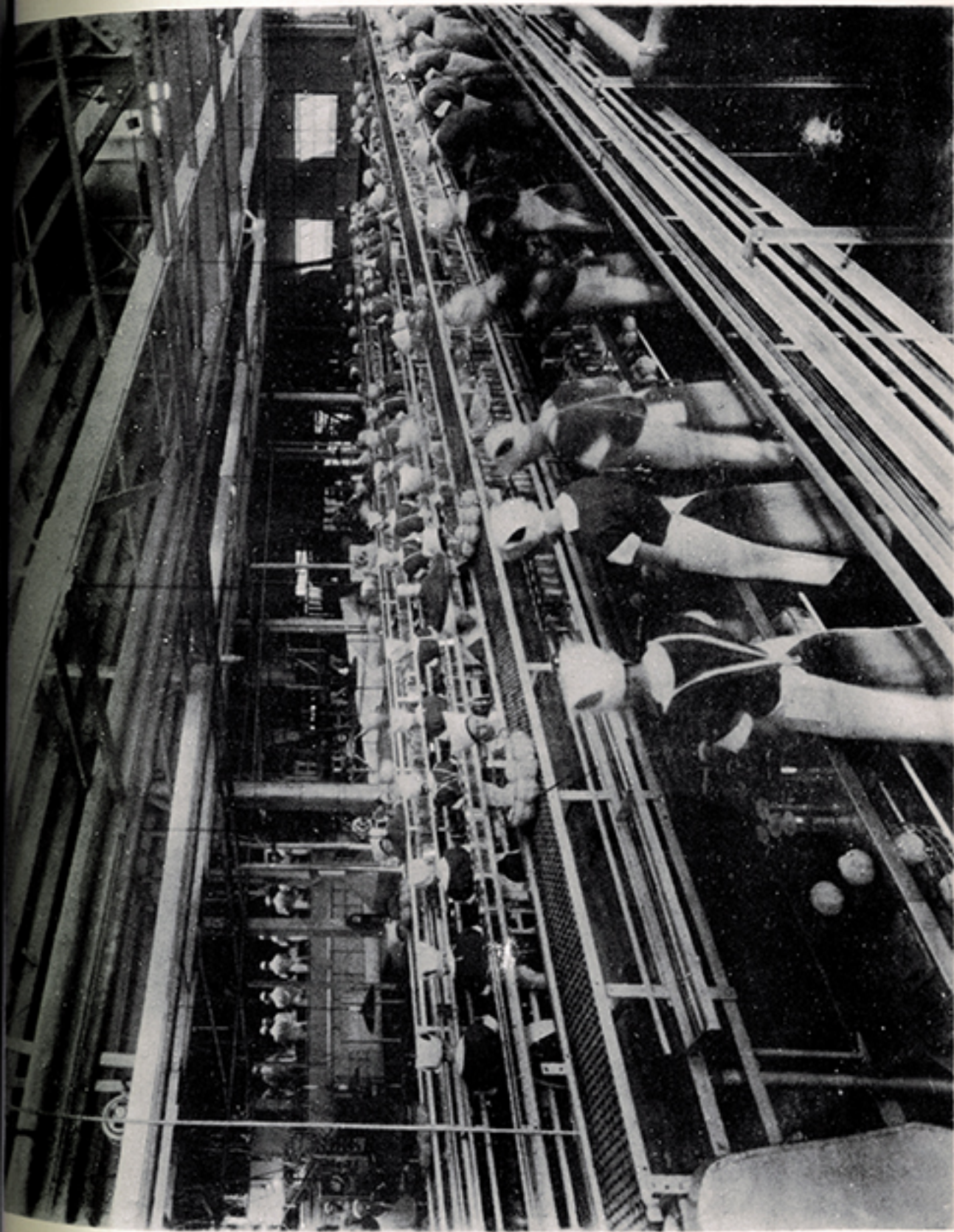
The workers under the direction of the Citrus Commission have the administration of duties prescribed by the rules and regulations of the commission. These, as issued in 1936-1937 include the following:

- (1) drawing samples of fruit and testing for juice content;
- (2) drawing samples of fruit and making tests for maturity of fruit;
- (3) checking on quality of fruit to see that it conforms to U. S. Standards (see those above);
- (4) issuing certificates of inspection to firms inspected;
- (5) Affixing of inspection stamps to containers, or providing for this;
- (6) supervises destruction of fruit which fails to pass maturity tests;
- (7) inspection of color-adding to fruit to see that it conforms to regulations;
- (8) inspection of containers to see that they conform to standard.²

It will be seen that two different governmental agencies of the state employ inspectors in the citrus industry and direct their activities. The first of these is the State Citrus Commission, and the second is the State

1. See Chapters No. 17780, 1937; No. 16856, 1935; No. 177781, 1937; No. 16858, 1935; and No. 17782, 1937; of Florida laws for specific provisions of these laws.

2. Annual Report Citrus Inspection Bureau, 1936-1937, pp. 89-127. Issued by Nathan Mayo, Commissioner of Agriculture, and J. J. Taylor, State Chemist, Tallahassee, Florida.



CANNING PLANT

Courtesy- Dr. P. Phillips Co.



STOCK FOOD MACHINERY

Courtesy- Dr. P. Phillips Co.

Plant Board. The employees of the first deal with citrus alone; the employees of the second are concerned about all plant disease and pests which do or may threaten to produce destructive results.

THE CANNING OF CITRUS FRUIT

AND CITRUS PRODUCTS

JOBS WITHIN CANNING PLANTS

The canning of citrus products has made a remarkable growth within the last decade. From a total pack of only ten thousand cases in the 1921-22 season, the output of canning plants has increased steadily to slightly over eight million cases during the 1937-38 season. Another indication of the important role being played by the canning industry in Florida is the purchase of slightly less than forty per cent of the total grapefruit crop by canneries in 1937. At least fifty citrus canning plants are in operation at the present in the State of Florida alone. Each one has from 300 to 900 or 1000 workers on its payroll. (1) It can be readily seen, therefore, that a large number of new jobs are being made available within this new branch of the citrus industry.

Management is still trying to cut down hard work as much as possible. In fact, if it were not for the machine, there probably would be no canning industry today. The most effective use of machinery occurs in the canning, cooking, lidding, sealing and labeling processes. As yet, there is very little machinery used in the peeling or the sectionizing of grapefruit. Such work still involves a great deal of hand labor, and probably always will. Various types of machines have been utilized with varying degrees of success in the juicing of citrus fruit. Yet notwithstanding the ever growing problem of technological replacement of human labor with mechanical labor, the number

of jobs available in canning plants and the need for trained workers will not be likely to diminish. On the contrary, they seem to be increasing with the general expansion of the industry.

In very few instances are jobs in canning plants, even the more menial and unpleasant jobs, given to negroes. There are no restrictions as to nationality. Because of the nature of the work in canning factories, female workers are by far in the majority. It is estimated that from 60 to 80 per cent of the workers are female. As to age, observation will disclose that the woman workers are, in the main, young and married, the majority being from 25 to 30 years of age. They are usually graduates from high school. Seldom is one found over 50. The majority of the workers are unable to advance very far. In other words, most workers have merely "jobs" rather than positions with attractive opportunities of advancing to the top.

Outside Yard Department

Fruit Feeder

When the fruit (which is principally grapefruit) arrives by truck at the cannery, it is given a preliminary inspection by the yard foreman and, if acceptable, unloaded. The driver backs his truck down an inclined plane to the edge of the receiving bin. In the larger canneries, there are several such bins. Here the yard man, by raising the back wall of the truck body, permits the fruit to roll down from the truck into the bin. This is a slow process. The emptying may be speeded up by pawing at the load with hands or feet. The yard man who performs this work is called a "fruit feeder," because he feeds the canning plant with fruit from the groves.

1. See discrepancy in data from 1935 census total in tables 15 and 16D.
See page 166 for data for 1936-37

Fruit Culler

From the receiving bin, fruit is lifted out by conveyors and spilled onto a wide culling belt. At this belt one or more culling men stand and sort out the fruit as it goes by. The culls and spoiled fruit are discarded with the other waste products from the plant. The usable fruit is carried along by belts and by conveyors to the sizers at the top of the plant. These sizers, similar to the ones used in packing houses, sort the fruit by size and allow it to drop into huge storing bins from ten to twenty feet high. The bins are provided with a series of floors sloping downward, each one extending only three-fourths of the way across the bin, staggered one above the other from top to bottom so that fruit will never have to fall more than a couple of feet. This arrangement prevents damage not only from falling but also from excessive weight and crushing.

Waste Removing Man

All waste products are gathered into a large metal tank immediately at the side of, or shortly removed from, the canning plant itself. Wastes include the peel from the peeling department, the skin, seeds, and pulp from the sectionizing department, the entire residue from the juicing department, and the culls and spoiled fruit from the culling belt. This waste is brought from various parts of the plant on moving chains and belts.

The waste-removing man drives one of the company's trucks directly beneath the tank. By manipulating a releasing arm, he can regulate the amount deposited down the chutes into the truck. He will probably prove most contented with his work if he has a nose impervious to odors.

How to dispose of canning plant wastes has been a major problem. Formerly it was hauled out to the woods and dumped. In the last few years a process

has been perfected for making the pulp and seeds into fertilizer. And now, within the last two years chemists have succeeded in producing satisfactory cattle feed from the grapefruit peel. It seems, therefore, that very little "waste" occurs any more. Fertilizer manufacturing and feed manufacturing plants take most of the excess products from the canneries at present.

Yard Foreman (Fruit Buyer)

The yard foreman and the fruit buyer are usually one and the same person. He has direct charge over the fruit feeders, the fruit cullers, and the waste man. To this extent he must be able to handle men and exhibit the qualities of good management. In collaboration with the canning plant superintendent and the peeling and sectionizing foremen, he establishes the standards for grades and sizes.

Naturally he must be thoroughly familiar with fruit. When a truck of fruit is hauled up to the cannery, he gives it an expert appraisal. If it comes from a grove owned by the same company which operates the canning plant, it is immediately accepted and dumped. But if it belongs to an independent grower or comes from an unaffiliated packing house, a purchase price must be agreed upon. In this function the yard foreman becomes a fruit buyer and purchases whatever fruit will be needed by, and will be profitable to, the cannery.

Peeling Department

According to the needs of the sales manager and to the supply of fruit on hand, the superintendent decides when to can citrus juice or citrus segments and the size of cans to be produced. For each size of can there is a corresponding size of fruit that will pack most easily and neatly. When the

foreman of the peeling department receives an order to peel a certain size fruit, he arranges for that fruit to be carried from its bin to the peeling department.

Hot-Peel Operator

Before reaching the peeling tables the fruit is sent through a tank of hot water. This softens the peel and enables it to be pulled off easily and cleanly. It is the job of the hot-peel operator to check the temperature of the water and regulate the speed of the belt carrying the fruit through. This will vary according to the type of fruit and the thickness of the peel. The thicker the peel, the longer will the fruit have to remain in hot water and therefore the slower will the belt have to move. Or, if it is desired to speed up the processing of the fruit, the belt is operated at the same speed, or even increased speed, and the temperature of the water is raised to a point which will effectively loosen the peel. Cooking the peel in this fashion does not in any way harm the remainder of the fruit. From the hot bath the fruit is carried by belts directly to the peeling tables.

Peeler

The peeling table is the starting place for nearly all male workers inside the cannery--except office workers. They start here while young. Rarely is an old hand broken in and placed at the peeling table. On the other hand, many companies have the rule that no one but an older worker can be taken into the remaining part of the plant. But even this can not be laid down as a hard and fast rule.

Scarcely three minutes are needed to learn how to peel a grapefruit. Yet an average peeler will work from three to six weeks before he becomes

skillful at his job. The work is quite simple in nature and tends to become routine. Skill comes with practice. Peelers average approximately 200 trays of fruit a day. Each tray or wire basket holds 12 grapefruit. (See illustration No. 11.) Some of the fastest workers can peel a maximum of 340 or 350 trays a day.

Inspector

The inspector checks to make sure that each tray contains twelve fruit and the peelers are doing a good job of peeling. Peelers are not supposed to leave any of the white inner peel clinging to the segments.

Checker

The checker (after peeling) identifies the work of each peeler by placing a metal check on each tray that is completed. At the end of the day each peeler's checks are counted and he is credited for the exact amount of work performed.

Lye-Spray Operator

The trays of peeled fruit are carried by belt from the peeling department to the sectionizing department. On the way they pass through an alkaline spray of caustic soda and water which eats away all the white tissue still clinging to the sections. The lye solution is then washed off by several fresh water sprays. When the fruit first emerges, it is tinged a dirty orange or yellow color between segments, but within a few minutes this coloring disappears. It is the duty of the lye spray operator to see that the solution is neither too strong nor too weak and that the spray machinery is in good working order.

Foreman of Peeling Department

The work of the hot-peel operator, the peelers, the inspectors, the checkers, and the lye-spray operator is all under the supervision of the foreman of the peeling department. He advises, oversees, directs, and gives orders as needed. He "calls" the belt for the peelers, i.e., tells them when to stop and when to start peeling. If any peeler reaches over and takes a grapefruit off the belt after he has blown the whistle to stop, a penalty must be imposed, since such action is a breach of trust with the other peelers. The foreman must be thoroughly familiar with all the work in his department so that he can readily detect acts of ignorance, carelessness, dishonesty, or lack of ability. He coordinates the work of his department with that of the sectionizing department.

Sectionizing Department

The largest department in floor space used and the one utilizing the most workers in a citrus cannery is the sectionizing department. Women employees make up an overwhelming majority of the workers. The sectionizing department includes all activities from the arrival of the peeled fruit to the delivery of the canned and cooled product.

Syrup Maker

Most, but not all, canned citrus juice and canned citrus segments are given artificial sweetening. Of course some of the output must remain completely unsweetened in order to satisfy the market demands of those who cannot eat sugar. The syrup maker has charge of the store room for sugar and prepares syrup as needed in large automatic cookers. From the cookers, the syrup is conveyed by pipes to the "syruping" machines. The syrup maker along with

one or more helpers, must also see that a steady stream of empty cans is kept moving down the chute to the "syruping" machine.

Syrup Machine Operator

The operator of the syrup machines sees that the cans are kept moving regularly and do not get jammed. As they pass under the machine, a small quantity of syrup is automatically measured and deposited in each can. The rate of operation of the machine may be adjusted to a faster or a slower speed as desired, the maximum being about 130 cans a minute. From the "syruping" machine, the cans are then carried upright on a belt to the sectionizing department.

Sectionizer

Sectionizing work is done entirely by women, just as peeling work is done entirely by men. In both operations the workers all stand at their tables. Fruit arrives at the sectionizing tables in trays or wire baskets from the peeling department. Each grapefruit is broken up into sections and the skin is removed from each segment by the aid of a sharp knife. The tender, whole segments are then packed into the cans received from the "syruping" machine. Any sections that are broken go into special cans marked with a broad, red stripe. Two of these cans give credit for only one good can filled. The filled cans are placed in trays which are later carried by tray boys to the cooking belt.

Some sectionizers prefer to work with the fruit held on spindles, while others prefer holding the fruit in their hands. It depends upon how learned and with which way they are most familiar and can work the fastest. Canneries equipped with spindles give the workers their own choice.

Furthermore, some sectionizers prefer to work with rubber gloves and some do not. In fact some are compelled to work with rubber gloves due to the peculiar reaction of their skin when coming into contact with citrus juice. The acid causes them to break out in a rash and, in a few cases, makes the worker sick. Occasionally an individual is found who cannot even stay in the vicinity of the strong odor or fumes from grapefruit without being violently affected. Naturally gloves would not help much in such a case so that work around a cannery is utterly impossible. But most workers can be affected only by actual contact with the fruit or the juice from the fruit. With them, the wearing of ^{rubber} gloves will usually prove to be an adequate protection. Approximately forty per cent of the women who sectionize fruit wear gloves. Seldom will a woman wear them unless necessary.

The seeds, skin, and pith are accumulated in a small container on the table. The tray boy is supposed to remove these, when full, and dump them into a chute at the side of the plant, from where the waste is carried by a chain to the large, metal waste tank on the outside of the building. Often, however, the sectionizer will empty her own container so that no time will be lost.

New employees do not find the work hard to grasp and understand. The average woman can readily learn the work within a week or ten days. In fact so simple are the duties required that if a worker (and occasionally these will be found) cannot do the work satisfactorily after trying for ten days, it is a pretty sure indication that she will never be able to understand and follow even simple directions, and she is politely advised or requested to withdraw altogether from the work. The new employees are distributed amongst the older and more experienced ones so that they can watch just how the work is

done. But instructors at each table give most of the beginning directions. In a short time the worker will normally develop skill. Since she is paid by the tray, like the peelers, she speeds up her work as much as she can. Sectionizers average about thirty trays a day, some of the fastest ones turning out a maximum of sixty a day. Past experience has shown that women are better workers for sectionizing than men, and the managerial staff, therefore, prefer them for this work. (See Illustration No. 11)

Checker (after sectionizing)

There is usually a checker or floor walker for each table of about five workers. When a sectionizer completes a tray of filled cans, the checker punches the card of the sectionizer to give proper credit. The checker also sees that all broken segments are placed in red-striped cans and that the correct amount of fruit is packed per can.

The checker acts as instructor and gives most of the instructions and directions to beginners. She spends a considerable amount of time showing how each operation may be performed efficiently and from time to time checks the quality of output of the workers. The job of checking is also performed by women.

Tray Boy

The tray boy carries the trays of canned fruit from the sectionizing tables to the belt leading to the cooking tank. Of course the sectionizer will not let him take away her fruit until after she has received credit for her work from the checker. The tray boy also has the task of emptying the waste containers for the sectionizers.

Process Tank Operator

The fruit is carried on a belt in open cans very slowly through a tank of hot water, the water coming up to within a half inch of the top. Here the fruit is thoroughly cooked from 25 to 30 minutes at from 180° to 186° F. The operator of the processing tank checks the readings on the cookers from time to time and makes sure that the fruit is progressing through the cooker satisfactorily. He is sometimes called the "hotean man".

Closing Machine Operator

From the cooker the filled cans are carried to the closing machine which performs three processes:

1. Pressing contents down about $\frac{1}{2}$ inch into can to make headway for the lid.
2. Placing the lid on the can.
3. Sealing the can airtight.

An automatic counter tabulates the number of cans filled and sealed.

Some canneries have several closing machines each of which will seal 240 cans a minute when operating at capacity. The closing machine operator sees that the machine run along smoothly and that each can gets properly lidded. Guiding wires then flip the moving cans upside down so that the syrup will be mixed thoroughly throughout the can. In this position, the cans are carried on a belt of revolving rollers under a continuous spray of cold water which

cools the cans from 168° F. down to normal air temperature. They are then rolled down to the labeling crew in the warehouse.

Knife Sharpener

One man is employed around most canning plants of any size to do nothing but sharpen knives for the sectionizers and peelers. This is a big task when there are several hundred employees. The workers, especially the sectionizers, need good sharp knives if they are to do their work rapidly and effectively.

Foreman of the Sectionizing Department

A woman is usually foreman of the sectionizing department. She is sometimes called head floor lady. Her job is to oversee the entire work of sectionizing department. She handles all personnel problems arising within her department and supervises the activities of the checkers or floor walkers. Upon receipt of an order from the superintendent concerning the canning of a particular size fruit, the foreman of the sectionizing department re-issues orders to the syrup machine operator, to the closing machine operator, and to other key employees so that they may make adjustments to their machines. She keeps in close contact with the foreman of the peeling department and with the plant superintendent and helps estimate the amount of fruit that will be processed before closing time. Or perhaps she will have to give her judgment on the amount of time needed to complete the processing of a particular order of fruit. The sectionizers finish their work, naturally, after the peelers are through, and considerably in advance of the warehouse crew. This lag must be accounted for carefully. The peelers usually start and end their work one-half hour earlier than the sectionizers, the latter, one-half hour earlier than the labelers. The foreman of the sectionizing department also gives

general supervision to each of the main activities within her department, such as sectionizing, syruping, cooking, checking, and lidding.

Juicing Department

The jobs within the juicing department are not as varied as those in the sectionizing department and, as a general rule, fewer workers are employed. White male workers predominate. The work done may be said to parallel that in the sectionizing department inasmuch as both divisions turn out a processed and canned product. In the latter, however, only the larger-sized and better-formed fruit is taken, for the segments that go into cans must be well-shaped. The juicing department utilizes all the fruit which is too small or too large to can satisfactorily and fruit which, though malformed perhaps, is still good for human consumption. Looks do not matter. All work involved in extracting the juice from citrus fruit and preparing it in canned form for the market is included in the juicing department. Besides the foreman, it includes the jobs of fruit washer, of reamer, of juice-filling operator, of closing machine operator, and of "hot-can" man.

Fruit Washer

Grapefruit and oranges, as they are brought in from the groves, are usually dusty or covered with spray powder. They need a thorough washing so that the juice will not be contaminated as it is squeezed out. The method of washing varies among the canneries. The better plants arrange to have the fruit which is to be juiced released from their bins and dumped into a long vat of water where it is automatically churned and brushed. Conveyors then lift the fruit out and up to the reaming table. The fruit washer takes care of the washing process and sees that the fruit goes through properly and

orderly and that the water is of the desired temperature and treatment. His work is not hard and could readily be performed by any unskilled laborer.

Reamer

Reamers stand along both edges of a long table which is constructed high in the middle and sloping down on each side. Just before reaching this table, the fruit is cut into half by rotating disc cutters. Each worker can reach over and divert a portion of the fruit into his box or section of the table. Two mechanical reamers are supplied each worker so that he can work with both hands at the same time, grasping a grapefruit or an orange half in each hand and pressing it firmly against the revolving reamer. The juice flows into a metal trough and finally into a large collecting vat. The pulp, seeds, and peel are discarded as waste material and carried by chain to the waste tank outside the plant.

Automatic reaming machines are coming more and more into general usage. Although they are faster and save considerably on the number of men employed, they are still unsatisfactory in certain other important features. They are too uniform and inflexible. Grapefruit peel varies in thickness from less than one-fourth to more than one-half inch, depending on the type of fruit and the stage of maturity at which it was picked. But a mechanical reamer recognizes no variations and, when set to a particular position, squeezes all fruit to the same extent. As a result, some fruit will be inadequately squeezed and leave a bit of juice untouched in each hull, while others will be pressed too firmly and thereby yield a bitter taste from the peel. Eventually, and as technological improvements are perfected, all citrus juices will probably be extracted by machine.

Juice Filling Operator

The extracted juices run into a large cooking vat where they are sweetened with sugar and given a uniform flavor. It is then automatically measured and poured into cans which are carried by belt into the filling machine at the rate of approximately 150 cans a minute. The juice filling operator stands constantly by the machine and watches that each can is adequately filled. Sometimes a partially filled can will have to be lifted out and emptied into other cans which are also lacking. Occasionally the machine will crumple up a can and this will have to be yanked out immediately. The operator must be able to stop, start, and make all necessary adjustments to his machine.

Closing Machine Operator

The cans of juice are carried upright by belt to the closing machine where, as in the sectionizing department, lids are sealed on automatically. The closing machine operator here has exactly the same duties and responsibilities as the closing machine operator in the sectionizing department. He sees that the machine is working properly and that the cans are kept moving. After being lidded, the canned juice is cooled down to room temperature by running water, just as the canned segments were, and also rolled down to the labeling crew in the warehouse.

Foreman of Juicing Department

The foreman of the juicing department exercises the usual duties of foremanship within his department, even as the foreman of the sectionizing department does within hers. He oversees in general the activities of the fruit washer, the reamers, and the juice filling operator. Constant supervision is necessary if the fruit is to be thoroughly and constantly washed,

if it is to be sufficiently squeezed and yet not overly so, and if the juices are to be sanitary and satisfactorily canned and sealed. The foreman customarily breaks in new workers and teaches them their duties and responsibilities. Finally, he must coordinate and harmonize the activities of his department with those of the other departments in the cannery and keep in close contact with the plant superintendent and with the other department heads. Production must follow demand, as far as possible. To meet market demands, from six to eight different sizes are canned. The foreman, in each instance, determines the proper size to be used.

Warehouse Department

Last in the procession of activities and jobs in a canning plant come those in the warehouse department. These include "can-catching", labeling, stacking, and trucking. None of these jobs require special skill or experience. They are merely routine in nature and the activities of each job can be readily learned.

"Can-Catcher"

As the canned and sealed products are advanced to the warehouse department from the sectionizing or juicing divisions, there may or may not be a "can-catcher", depending entirely on the layout and arrangement of facilities. Usually there is one. His duties are to take the cans off the belt (or chute as the case may be) and stack them in cardboard boxes. Of course all cans with red marking from the sectionizing department must be boxed separately for they contain broken, and therefore inferior, segments. Number "2" cans pack twenty-four to a box and other sizes vary----some eighteen, some twelve, and some only six to a box.

The name "can-catcher" probably originated from the fact that cans were usually rolled down to the labeling department on long chutes, slowed up near the end by having to pass under long strips of heavy canvas, and being "caught" by the man who placed them in boxes.

Stacker

As rapidly as the cans are placed in boxes, the stacker removes them and stacks them nearby according to size and quality. Another stacker performs similar work as soon as the labeling crew finishes with them. This is heavy work and requires a good strong back.

Labeler

The labeling crew is generally composed of several men. Two workers operate the labeling machine itself, one man applies glue on the lids of the box, and at least one or more men must take care of the machine which closes and presses the lids together. Boxes are usually stamped by machine with the name of the company. The particular brand names are pasted on the ends of the boxes in the form of paper labels. As the truckers bring the boxes up to the labeling crew, the cans are lifted out and sent rolling down the runway of the labeling machine. A tiny rubber belt is kept constantly revolving across the path of the rolling cans, leaving a light coating of glue their entire length. The cans then pass over a stack of paper labels and the top one adheres and wraps around the can. Occasionally the paper gets crumpled up and jams the machine. The labeler must be alert to stop the machine as soon as this occurs.

Except for the broken segments, all of the output is of virtually the same quality and grade. Yet the same cannery will usually put up from three to six or more variously marked labels to tell the public that differences do

exist in the quality and therefore in the prices. Upon an order from the foreman of the warehouse, the labeler in charge of the labeling machine will change the brand name being used in the machine.

Trucker

A trucker in the warehouse division of a canning plant does practically the same kind of work as that performed by a trucker in a packing house. Instead of field boxes and crates of oranges and grapefruit, however, he moves cartons of canned fruit and of canned fruit juices. Some truckers operate their two-wheeled mechanical trucks between the "can-catcher" and the labeling crew; others cart the sealed and labeled boxes from the labeling machine to convenient storage places within the warehouse, and eventually into trucks or freight cars for transportation to markets.

Foreman of Warehouse

The foreman of the warehouse directs and supervises all activities within the warehouse, from the time cans are received from the sectionizing and juicing departments until they are loaded on cars or trucks. Though his duties and responsibilities are possibly less than those of the other foremen in the cannery, he exercises practically the same type of leadership and control. He keeps in constant touch with the plant superintendent and the other department heads so that he will know approximately the volume of cans coming through, and how they are to be labeled, stacked, and loaded.

Truck Driver

The position of truck driver in a canning plant is very like that found in packing houses. A thorough understanding of the principles of truck laws, regulations and restrictions applicable to those States operated in is a virtual necessity. Good general health, quick reaction to external

stimuli, and sharp eyesight are invaluable for truck driving.

Mechanic

The mechanic is the technician and general repair man about the canning plant, and performs the same duties here that the house mechanic in a packing house does.

Due to its high acid content, grapefruit juice is very destructive to metal. Chains and exposed parts of machinery are eaten away much more rapidly, therefore, in canneries than in packing houses--even though they are monel metal or stainless steel. This requires not only expensive machinery but constant inspection and repairing. Broken bolts and chains must be mended; machinery oiled, cleaned, and cared for; and parts replaced when needed. Consequently a thorough understanding of the principles of mechanics and the operation of modern machinery is an invaluable asset.

Boiler Tender

One man does nothing but take care of the boiler room and fire the furnaces. Constant watch must be maintained to insure that the temperature of the water in the large boiler does not range too far above or below the required limits. The entire plant would be delayed if water sufficiently hot could not be obtained. The boiler tender, therefore, must come to work several hours before the plant starts operations. The fires never die out, but the temperature falls considerably during the night. In addition to the regular gunges attached to the boiler, the worker can watch the molten, white-hot interior of the furnace through small, round plate glass windows, specially constructed to resist intense heat.

Some canning plants have automatic oil furnaces to supplement the regular coal furnaces. Although these are slightly more expensive, they are

dependable and offer good insurance against inconsistencies or breakdowns in the main furnace.

Every week or so during the operating season, the boiler tender must empty and thoroughly cleanse the inside walls of his boiler. This is generally done on Sundays, while the plant is not being used. Hot air blasts are directed against the sides to remove scale and dirt. This is the hardest and most unpleasant phase of a boiler tender's work. Most of the time he has little to do except make frequent inspections as to the condition of the fire and of the water in the boiler. A certain amount of engineering skill is helpful.

Clean Up Man

Several workers, either men or women, colored or white, are usually employed as general clean-up people around the plant. The building and grounds must be kept unusually clean and sanitary. The floors of the peeling, sectionizing, and juicing departments are thoroughly scrubbed and disinfected twice a day, at the noon hour and immediately following the day's work. Otherwise the stench of warm grapefruit peels and juice would become well-nigh unbearable. As it is the grapefruit odor gets pretty strong about closing time. As soon as all other workers leave, the clean-up men go through the entire plant with high pressure steam hoses and cleanse not only the floors but every piece of machinery as well. This is not only a good policy from the point of view of sanitation, but it also extends the life of the equipment, for the acid nature of grapefruit is very destructive to metal.

Office Workers

Employees working in the office of a canning plant, just as those who do office work in a packing house, perform essentially the same type of work as

that found in any ordinary business office. There is dictation to take, typing to be done, letters and telegrams to be sent out, routine correspondence to handle, and books, records and office files to be kept. Each job requires considerable skill and training. A college education is desirable, yet a good high school education supplemented by a sound course of training at a business school will generally prove satisfactory.

Employers are becoming more exacting in their demands and advanced schooling in business and cultural subjects is more and more proving to be indispensable if a young person desires to succeed in the office or executive end of business. Especially to be cultivated are the qualities of alertness, initiative, congeniality, dependability, tact and courtesy.

It is not necessary that an office worker know citrus fruit or even all the processes through which it is sent. New office help is drawn either from among the more promising help within the plant, or else from colleges, high schools, and business schools. Both men and women can work in the office. The jobs of bookkeeper, of stenographer, of sales manager, and of traffic manager were briefly described in the section of this report which deals with packing houses. This description holds in the office jobs generally found in canning plants which include those of inventory clerk, payroll clerk, secretary, sales manager, and chemist. In small canneries these jobs are combined into one or two, but in the average sized plant each activity will probably warrant a job to itself. These jobs will now be discussed in brief.

INVENTORY CLERK.

The inventory clerk records the amounts of fresh fruit received from groves and the daily amount of each kind of product turned out. He keeps a careful record of the total inventory on hand and the amount shipped out. He

keeps in close touch with the sales manager.

PAYROLL CLERK.

The payroll clerk computes the earnings of all employees and prepares the pay envelopes. He obtains from the bookkeeper the exact number of hours worked by each hourly worker and multiplies this by the hourly wage rate. The salaried employees, that is, those who are paid so much a week, a month, or a year, are much easier to keep track of. Both the inventory clerk and the payroll clerk should be quick and accurate with figures and like to do detailed, routine work.

SECRETARY.

The secretary is usually an assistant to the plant superintendent. She takes dictation from him, handles his general correspondence, and relieves him from all the minor responsibilities that he (or she) can. This is naturally a very important position and requires a considerable amount of intelligence, education, and training.

CHEMIST.

Perhaps one of the most promising opportunities opening up for young college men in canning plants is that of chemist. A thorough training in analytical chemistry at a reputable college is the first stopping stone. The possibilities of discovering new uses for canned citrus fruit and canned citrus juices, and of developing new methods for preparing, blending, and canning seem very encouraging. The work is confining and rather individualized, however, so that there is little mingling or working with other people. The chemist is left largely to his own initiative in carrying on researches for the welfare of both his company and for science as a whole. A few canning plants have installed finely equipped laboratories within the last few years.

These are the more progressive and far-sighted ones. Eventually, every canning plant of any significance at all will have its own laboratory and research department, for there should be at least one chemist in every large plant.

Superintendent

The leading executive in a canning plant is the superintendent--sometimes called the president or occasionally, the general manager. This position carries with it the entire responsibility for the degree of success attained by the company. He administers the policies and supervises the general activities in each department--peeling, sectionizing, juicing, and warehouse. He therefore keeps in close contact, not only with his office employees, but also each department head. He hires and dismisses all these main employees who come under his direct supervision. The department heads are given authority to hire and dismiss workers within their own departments.

In order to give adequate direction and leadership to his work, a good superintendent should have an intimate understanding of the entire processes through which fruit must pass and know thoroughly the duties, responsibilities, and limitations of his employees. He must be able to recognize when good work is being done or not done. It is easy to keep the morale of the plant up by winning the confidence and respect of all workers. Therefore he needs to possess a sympathetic understanding of human nature and have an adequate grounding, either through schooling or through sufficient experience, in the principles of personnel work.

ALPHABETICAL LIST OF JOBS IN CANNING PLANTS:

Boiler Tender
Bookkeeper
Box Boy
Box Maker
Buyer
Can Catcher
Caretaker

Checker in Packing House
Checker in Canning Plant
Chemist
Clean-up Man
Closing Machine Operator
Dumper
Foreman of Groves

ALPHABETICAL LIST OF JOBS IN CANNING PLANTS:
(Continued)

Foreman of Juicing	Peeler
Foreman of Packing House	Pre-Cooling Operator
Foreman of Peeling Dep't	Process Tank Operator
Foreman of Sectionizing Dep't	Pruner
Foreman of Warehouse	Reamer
Fruit Caller	Receiving Clerk
Fruit Feeder	Sales Manager
Fruit Washer	Secretary
Grader	Sectionizer
Grove Laborer	Shipping Clerk
Hot-Peel Operator	Spray Hand
Knife Sharpenor	Stenographer
Labeler	Syrup Machine Operator
Loader	Syrup Maker
Lye Spray Operator	Traffic Manager
Manager of Packing House	Tractor Driver
Mechanic	Tray Boy
Nailer	Truck Driver
Night Watchman	Trucker
Packer	Waste Remover
Payroll Clerk	Yard Foreman

DATA ON HOURS OF WORK AND WAGES
1937-38

The data on hours of work and all wages were obtained by first hand interviews in the field. No general compilation is available.

One grove near Auburndale supplied the following:

1. Pickers worked 2, 3 or 4 days a week, on the average
2. Hours were from 5:30 or 6:00 A. M. (varying with weather conditions) to 8:00 P. M. and during rush periods as late as 12:00 P. M.
3. Wages varied from \$1.50 to \$4.00 per day.

In Lakeland a packer reported that his total income (September to about December 20) was about \$60.00. At another place, a picker reported his wages as averaging \$13.50 for nine months, but he did other work besides picking fruit. This same man reported that most pickers in his area averaged \$12.00 per week for picking. Field foremen were reported to receive \$35.00 to \$45.00 per week; house foremen, \$50.00 a week.

The following schedules of wages were received:

X. FIRM

1. Box maker 85¢ to 90¢ per 100 boxes
He hires his helpers at 25¢ per hour.
2. Loading fruit 70¢ to 75¢ per 100 boxes for standard boxes.
3. Box boy (in packing) paid 27.5¢ per hour.
4. Packing inspector employed by packing house, \$25.00 a week.
5. Checker, 30¢ an hour.
6. Night watchman \$25.00 a week.
7. House mechanic \$30.00 a week, entire year
8. Grader, 30¢ to 40¢ per hour.
9. Packer: 5¢ per box averages-unwrapped
6¢ per box blind packed
7¢ per box fully packed
4 to 4½¢ per box grapefruit, standard size.
10. Truck driver 30¢ per hour.
11. Field superintendent \$30.00 per week.
12. Bookkeeper, \$30.00 to \$37.00 per week.
13. Manager, \$2000 to \$8000 per year.
14. Field foreman \$25.00 per week for the season.
15. Packing house foreman, \$150.00 to \$200.00 a month for season.

Y. FIRM

(about 30 miles from X Firm)

1. Box maker, 30¢ per hour.
2. Box boy, 27½¢ per hour.
3. Checker, 35¢ per hour.
4. Night watchman 25¢ per hour.
5. House mechanic 32½¢ per hour.
6. Grader, 27½¢ per hour.
7. Packer: 3¢ per box grapefruit, standard box.
2½¢ per box grapefruit, bruce box.
5¢ per box oranges, bruce box.
6¢ per box oranges, standard box.
8. Truck driver, 30¢ per hour for 90 to 100 hours per week.
9. Office workers, \$25.00 to \$50.00 per week.
10. Mailer, 35¢ per hour.
11. Loader, 27½¢ per hour.
12. Dumper, 30¢ per hour.
13. Picker, 4 to 5¢ per crate grapefruit.
7 to 10¢ per crate oranges

Y. FIRM (Continued)

14. Garage mechanic, \$25 to \$50 per week.

Workers in this packing house, averaged 3 to 20 hours per day, and 30 to 120 hours per week, varying with slack or rush conditions, general average was 60 hours per week from October to June, an unusually long season.

Women packers earned from \$15.00 to \$30.00 a week for as many as forty weeks, the maximum. Workers were paid weekly in cash or checks.

One association engaged in grove work and packing reported the following schedule of wages:

Trucker, 25¢ per hour.
 Dumper, 30¢ per hour.
 Box boy, 20 to 25¢ per hour.
 Loader, 30¢ per hour.
 Box maker, 30¢ per hour.
 Nailer, 35¢ per hour.
 Grader, 30¢ per hour.
 Packer, 2½¢ to 7¢ per box.
 House mechanic, 35¢ per hour.
 Night watchman, 2.00 per night
 Picker, 3¢ to 6¢ per crate grapefruit.
 7¢ to 12¢ per crate oranges.

One canning plant (2) employing about 600 workers reported that its workers averaged 27½¢ to 40¢ per hour for the season.

FIRM AZ

Packing house workers are paid an average of 40¢ per hour, and earn about \$25.00 to \$30.00 per week for the season, of about 8 months.

FIRM MN

This firm owns some groves, handles over 100,000 boxes of fruit each year, and has a typical season of 6 months.

The wages are as follows:

Packer, 6¢ per box oranges.
 Box maker, 35¢ per hour.
 Skilled grader, 35¢ per hour.

Trucker, 25¢ per hour
 Picker, 20 to 25¢ per hour.

FIRM NO

This firm was incorporated in 1930, has a season from October 15 to June 15, employs 100 workers in the field and 125 in the packing house.

Schedule of wages is as follows:

Packer, 6¢ per box
 Grader, 30¢ per hour
 Box maker, 50¢ per hour
 Nailer, 35¢ per hour
 Loader, 35¢ per hour
 Trucker, 27½¢ per hour
 Box boy, 27½¢ per hour
 Checker, 32¢ per hour.
 Night watchman, 27½¢ per hour.
 Bookkeeper, \$25.00 per week.
 Stenographer, \$25.00 per week.
 Clerk, \$35.00 per week.
 House foreman, \$50.00 per week.
 Picker, 5¢ per box grapefruit
 7¢ per box oranges.
 Mechanic, 35¢ per hour.

Reports were obtained from five other firms, but the wages did not vary much from the samplings given above.

JOBS AND WAGES

Type of Work	Remuneration		Average Weekly Earnings
	Basis of Pay	Rate of Pay	
<u>Jobs in Grove:</u>			
Tractor driver	hour	\$.30	
Spray hand	"	.27½	
Pruner	"	.25	
Common grove laborer	"	.20	\$ 10.00
Caretaker			
Owner			
<u>Outside jobs with P.H.</u>			
Foreman of groves	(day	4.50	
	(hour	.40	
	(month	125.00	27.50
Picker	box	.05 grapefruit	18.00
	box	.08 oranges	12.00
Loader	hour	.25	
Truck driver	hour	.30	
<u>Jobs within P. H.</u>			
Trucker	hour	.25	
Dumper	hour	.30	
Grader	hour	.35	
Packer	box	.04 grapefruit	25.00
		.06 oranges	
Box boy	hour	.25	
Nailer	hour	.35	
Box maker	hour	.25	17.50
Grade & pack inspector	hour	.30	
Checker	hour	.30	
Pre-cooling operator	hour	.35	
Loader	hour	.25	
House mechanic	hour	.35	
Night watchman (varies)	hour	.25	
	night	2.00	
	hour	.27½	
Foreman of P. H.	month	150.00 to 200.00	
Bookkeeper	) \$25 week	30.00	30.00
Stenographer	) week	25.00	25.00
Shipping clerk	) to week	25.00	25.00
Sales manager	) \$50 week		
Traffic manager	) a		
Buyer	)		
Receiving clerk	) week		
Manager of P. H.	year	2,000.00 to 8,000.00	

Jobs with Canning PlantsOutside -

Fruit feeder	hour	.25	22.50
Fruit cullor	hour	.20	12.00
Waste remover	week	18.00	18.00
Boiler tender	week	25.00	25.00
Yard foreman	week	25.00	25.00
Truck driver	week	22.50	22.50
Garage mechanic	week	25.00	25.00

Peeling Department

Hot-pool operator	week	20.00	20.00
Peeler	tray	.0175	
		.015	20.00
Inspector	week	25.00	25.00
Checker	week	25.00	25.00
Lye-spray operator	week	20.00	20.00
Foreman of peeling dept.	week	25.00	25.00

Sectionizing Department

Syrup maker	hour	.30	22.50
Syrup machine operator	week	17.50	17.50
Sectionizer	tray	.04 $\frac{1}{2}$	
		.09	12.50
Checker	week	25.00	25.00
Tray boy	hour	.25	18.50
Process tank operator	hour	.25	20.00
Closing machine operator	week	20.00	20.00
Knife sharpener	week	15.00	15.00
Clean-up man	week	15.00	15.00
Foreman of sectionizing dept.	week	25.00	25.00

Juicing Department

Fruit washer	hour	.25	20.00
Reamer (A unit is equivalent to a case of 24 #2's or 3.33 gallons)	unit	.04 grapefruit .05 blended .06 orange	25.00
Juice filling operator	hour	.25	17.50
Closing machine operator	week	20.00	20.00
Hot can man	hour	.25	17.50
Foreman of juicing dept.	week	25.00	25.00

Warehouse Department

Can catcher	hour	.25	17.50
Labeler	hour	.25	20.00
Stacker	hour	.25	17.50
Bull gang	hour	.25	15.00
Foreman of Warehouse Dept.	week	25.00	25.00

Office		17.50	17.50
Bookkeeper	week	30.00	30.00
Inventory clerk	week	17.50	17.50
		50.00	50.00
Stenographer	week	17.50	17.50
		30.00	30.00
Secretary	week	50.00	50.00
Payroll clerk	week	17.50	17.50
		30.00	30.00
Sales manager	month	300.00	50.00
Traffic manager	month	250.00	45.00
Chemist	month	300.00	40.00
			55.00
			50.00
Superintendent	month	400.00	50.00
			80.00

AN SUMMARY OF EMPLOYMENT IN CANNING

1911-15.

If the reader will consult Tables 15 (p. 114), 16 (p. 115), 18 (p. 116), 19 (p. 117), he will note that the number of employees (workers) in the industry in 1935 was small, even after making allowance for errors in the census.

In order to obtain a better picture, and to show the change in total employment of the industry since 1935, an official of the industry was requested to make an estimate of total employees in the state, as of date, December, 1937. Here follow his estimates:

1. Fishermen	1,032
2. Section hands	2,808
3. Miscellaneous labor	1,014
4. Mechanists and truckers	150
5. Supervision (managers & foremen)	40
6. Bookkeepers	24
7. Stenographers	24
8. Inventory clerks	24
9. Central office workers	24
10. Payroll clerks	24
11. Chemists - number unknown	
Total	5,144

Both the A. F. of L. and the CIO are working hard to gain a foothold among the citrus workers. Their progress has been exceedingly slow since it is difficult to get a strong grip on the workers because of the seasonal aspect of the work. In any line of work which is very seasonal or at all uncertain and in which the annual income of the workers is very low, ineffective organization of the workers is difficult--in fact, almost impossible. The workers are so poor and their group resources so inadequate that they could not carry out a strike or adequately enforce their demands.

AN ESTIMATE OF NUMBER OF WORKERS IN CANNING

1937-38.

If the reader will examine Tables 15 (p. 114), 16D (p. 115), 18(p. 116) and 22 (p. 118), he will note that the number of employees (workers) in canning citrus in 1935 was small, even after making allowances for errors in the census.

In order to obtain a better picture, and to show the change in that part of the industry since 1935, an official of the cannors was requested to make an estimate of total employees in the state, as of date, December, 1937. Here follow his estimates:

1. Peelers-----	1,032
2. Sectionizers-----	2,808
3. Miscellaneous labor-----	1,944
4. Machinist and truckers-----	168
5. Supervision (managers & foreman)--	48
6. Bookkeepers-----	24
7. Stenographers-----	24
8. Inventory clerks-----	24
9. General office workers-----	48
10. Payroll clerk-----	24
11. Chemist - number unknown	
Total	<u>6,144</u>

Each unit of considerable size should have a chemist.⁽¹⁾

-
1. Estimates supplies by Mr. C. E. Lindsey, chairman, Florida Grape Fruit Cannors' Association, December 2, 1937.
-

Chapter III.

Trends in the Citrus Industry in Florida

Anyone concerned with prospects in the citrus industry will desire considerable information about trends, or tendencies, about various phases of that important industry. Accordingly, data as to trends are included here, and in the appendix, dealing with the following matters:

- (1) the trend as to quantity of citrus fruit produced in Florida;
- (2) tendencies as to increase of citrus groves through new plantings of trees; (3) some information as to world wide production of citrus fruit; (4) a trend for a ten-year period in exports and imports of citrus by different countries; (5) returns to citrus producers compared with the cost of living; (6) trends in value and production compared from 1920 to 1938; (7) comparison of production and price by separate states, 1919-1938; (8) shipments of oranges by months; (9) possible continued increase in production due to age of trees; (10) a series of conditions basic to income from the industry such as investment, yield per acre, in relation to costs and returns (given for a period of years and also for a selected group of groves), detailed analyses of costs and cost factors in relation to returns.

TABLE 1.

CITRUS PRODUCTION IN FLORIDA

Records of yields of citrus crops in Florida have been kept since the season of 1884-85. Since that time, there has been a steady increase in production each year except those years following frost injury. The following table gives the production in boxes of fruit from 1884 to 1927, and the value from 1904.

PRODUCTION OF FLORIDA CITRUS*

Year	Valuation**	Boxes
1884-85		600,000
1885-86		900,000
1886-87		1,260,000
1887-88		1,450,000
1888-89		1,950,000
1889-90		2,150,000
1890-91		2,450,000
1891-92		2,713,180
1892-93		3,450,000
1893-94		5,055,367
1894-95		2,808,187
1895-96		147,000
1896-97		218,379
1897-98		358,966
1898-99		252,000
1899-00		274,000
1900-01		352,600
1901-02		974,033
1902-03		1,147,491
1903-04		1,954,954
1904-05	\$ 4,688,683	2,961,192
1905-06	5,463,561	3,794,133
1906-07	5,663,719	3,801,101
1907-08	4,807,500	3,250,000
1908-09	7,229,040	4,634,000
1909-10	8,174,000	6,100,000
1910-11	7,590,000	4,600,000
1911-12	10,497,000	4,750,000
1912-13	15,925,000	8,125,000
1913-14	14,541,180	7,946,926
1914-15	13,774,000	9,700,000
1915-16	16,405,200	8,370,000
1916-17	15,678,000	7,649,049
1917-18	19,030,000	5,581,309
1918-19	35,732,640	8,900,000
1919-20	27,675,000	12,500,000
1920-21	29,550,000	13,200,000
1921-22	22,450,000	13,300,000
1922-23	31,860,000	16,900,000

PRODUCTION OF FLORIDA CITRUS*

Year	Valuation**	Boxes
1923-24	\$27,759,052	20,400,000
1924-25	23,190,000	19,200,000
1925-26	35,550,000	14,700,000
1926-27	30,900,000	16,600,000
1927-28	33,698,130	13,625,360 ⁽¹⁾

*Includes oranges and grapefruit

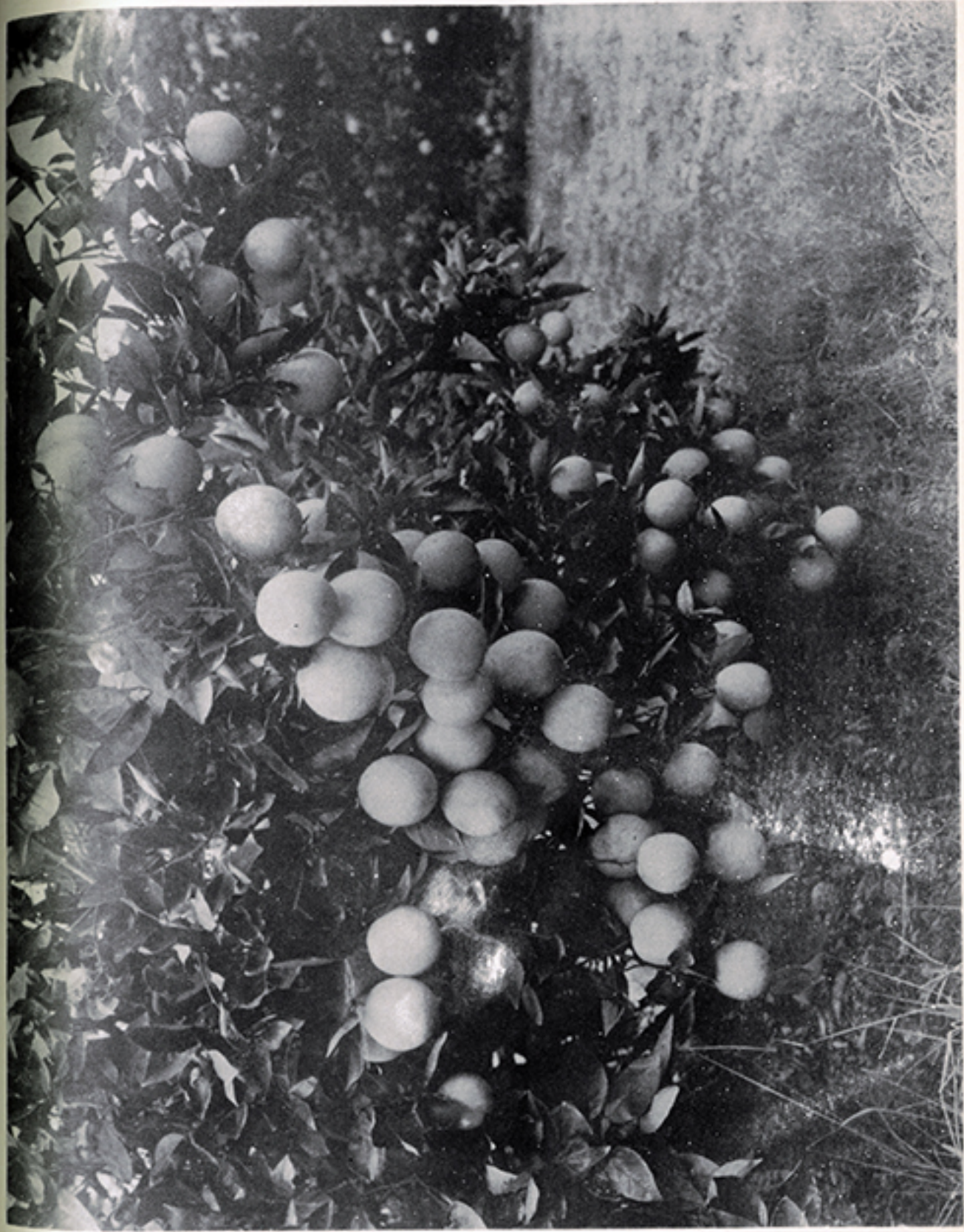
**Farm value

Data supplied by State Marketing Bureau

ORANGE AND GRAPEFRUIT PRODUCTION
(By Boxes)
1929-1937

	Production
1929	18,578,000
1930	35,320,000
1931	25,006,000
1932	28,000,000
1933	28,800,000
1934	32,800,000
1935	29,500,000
1936	30,600,000
1937	40,200,000 (1A)

-
1. From "Citrus Growing in Florida" - State of Florida Department of Agriculture. Nathan Mayo, Commissioner; p. 8, Bulletin No. 2, August, 1935.
- 1A. Wilson, H. F., Market News Service on Fruits and Vegetables, Florida State Marketing Bureau, Lakeland, Florida. Bulletin of September 3, 1938, pp. 86-87.
- Note: See page 7 for estimated production and value for year 1936-37.



VALENCIA ORANGES ON THE TREES

Courtesy-Florida Citrus Exchange

Trends as to Increase in Numbers of Citrus Trees

Data were available to show tendencies in citrus plantings for the years 1933 to 1937 for Florida. This information is based on the movement of citrus stock from nurseries for that period. The following table includes those items of information.

TABLE 2.

Total Number of Citrus Trees Moved during Fiscal Years 1933-34, 1934-35, 1935-36, 1936-37, as Reported to the State Nursery Inspector, Gainesville, Florida.

Year	Oranges	Grapefruit	*Mandarin	Limes	Lemons	**Misc.	Total
1933-34	440,429	156,471	74,187	40,616	22,438	17,919	754,060
1934-35	351,289	89,468	30,880	33,666	11,486	10,930	527,719
1935-36	530,564	153,986	34,128	61,207	29,472	13,036	822,393
1936-37	746,849	106,421	38,427	123,054	19,361	21,855	1,055,987
Total	2,069,131	508,346	177,622	258,543	82,777	63,740	3,160,159 ²

* Satsumas, tangerines, Temples, etc.

** Kumquats, Tangelos, Citrons, Hybrids, etc.

For the reader: The most significant part of this table is the last column of totals. This shows a total movement of 3,160,159 citrus trees for that period. In other word, citrus growers, with the exception of 1934-35, maintained a steady increase in planting new trees.

TABLE 3.

Plantings of Orange Trees Over a Longer Period

Trend as shown by Increases in Numbers of Bearing Trees for U. S. A.,

2. Brown, Arthur C., Grove Inspector State Plant Board, from the Citrus Industry March 1938, page 6.

for Florida, and California, by Five-Year Periods, 1920 to 1935.

	From 1920-25	1925-1930	1930-1935
Total U. S.	7,295,373	2,628,362	8,752,937
Florida	3,621,395	1,696,640	4,353,150
California	3,569,950	369,589	3,103,330 ⁽¹⁾

The outstanding fact shown in the above table is the variation in numbers of bearing trees in the two major citrus producing states, California and Florida.

World Wide Production of Citrus

And consideration of careers in the citrus industry should be viewed not only in light of trends in our own country, but also with reference to production in other parts of the world. In a real sense, some of the citrus producing areas are competitive areas with the United States, including Florida. Table 4 gives the information for the year 1935-36.

TABLE 4.

World Wide Orange Production, 1935-36.
(Given in boxes of fruit)

	1,000 bxs.		1,000 bxs.
United States	55,850	France	40
Spain	27,000	Egypt	900
Italy	7,500	Cyprus	300
China	15,000	Puerto Rico	1,000
Japan	13,000	Cuba	2,000
Palestine	8,500	Jamica	400

1. Data derived from: Crop Report, Outlook for Oranges for 1938, Released November 10, 1938, U. S. Department of Agriculture, Bureau of Agricultural Economics, Prepared in October, 1937, See page 3.



INDIAN RIVER ORANGES ON THE TREES

Courtesy- Florida Citrus Exchange

Brazil	15,000	Argentina	700
Union of South Africa	3,200	Dominia, British	
		West Indies	10
Mexico	3,000	Paraguay	3,000
Australia	3,000	Syria	1,000
Algeria	2,500	Others	<u>12,000</u>
Uruguay	3,000		
Greece	1,200		
South Rhodesia	170		
Mozambique	150		
Philippines	350		
Tunis	100	Approximate world	
Italian Aegean Isles	30	Production	180,000

In addition, the following countries produce citrus fruits in smaller quantities; British Honduras, Chile, New Zealand, Portuguese East Africa.¹

These countries produce fruit in most cases, in excess of their needs. Obviously, nearby markets are preferred. These facts will have to be considered in any attempt to increase that market for Florida citrus fruit or for citrus from any other section of the United States.

TABLE 5.

Oranges: International trade, average 1925-29, annual 1932-35

All boxes converted to weight 78 pounds.

Average									
1925-29		1932		1933		1934		1935	
Ex-ports	Im-ports	Ex-ports	Im-ports	Ex-ports	Im-ports	Ex-ports	Im-ports	Ex-ports	Im-ports
1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
boxes	boxes	boxes	boxes	boxes	boxes	boxes	boxes	boxes	boxes

Principal Exporting Countries

Spain	20,925	1	24,802	2	27,641	1	24,999	0	11,795	2
Italy	3,435	0	1,739	1	4,036	1	2,534	1	-----	-----

1. Rhodes, N. From Field to Market with Florida Vegetables and Citrus Fruit. Bulletin New Series No. 88, p. 79, State Department of Agriculture, Tallahassee, April, 1938.

United States	3,285	14	3,129	0	3,399	0	3,318	24	5,463	-----
Palestine	2,123	0	3,533	0	4,209	0	5,148	0	6,941	0
Union of South America	734	0	1,702	0	1,933	0	2,186	0	2,089	0
Brazil	571	0	1,930	0	2,554	0	2,632	0	2,640	0
Japan	449	0	412	0	652	0	896	0	939	0
Total	31,532	15	37,367	3	44,424	2	41,713	25	37,867	2 (1)

TABLE 6.

Oranges: International Trade Imports and Importing
Countries Given in 1,000 box units.
(All boxes - wt. 78 lb.)

	Ave. 1925-29		1932		1933		1934		1935	
	Ex.	Imports	Ex.	Imports	Ex.	Imports	Ex.	Imports	Ex.	Imports
Principal Im- porting Countries										
United Kingdom	0	11,307	0	12,939	0	16,086	0	14,424	0	14,282
Germany (3)		6,259		6,705		7,633		7,498		6,771
France (4)	81	3,793	58	6,600	38	8,644	41	8,828	13	7,433
Canada	0	2,237	0	2,171	0	2,048	0	2,162	0	2,385
Netherlands	591	1,833	289	2,229	13	2,330	3	1,583	1	1,926
Belgium	(3)	(2)875	2	(4)2,018	1	(4)2,312	0	2,152	2	1,903
China (5)	292	462	339	(5)298	408	102	361	138	483	118
Manchuria (6)			1	369	0	699	0	806	---	-----
Switzerland	0	440	0	679	0	907	0	825	0	732
Czechoslovakia	0	416	0	567	0	845	0	687	0	642
Norway (4)	0	391	0	558	0	600	0	625	0	587
Sweden	0	357	4	751	2	947	4	984	---	989
Egypt (7)	4	345	10	70	29	73	86	11	144	6
Hungary	0	293	0	240	0	298	0	338	0	332
Poland	0	256	0	83	0	71	0	78	0	953

1. Statistics of Fruits and Vegetables. Separate from Agricultural Statistics, No. 13 Table 206, p. 161, 1937, U. S. Government Printing Office, 1937

Irish Free State	0	255	0	336	0	492	0	469	0	422
Denmark	0	234	0	293	0	291	0	306	0	253
Yugoslavia	0	161	0	156	0	155	0	202	0	185 (6)

Notes: 3, included with lemons, 4, includes some lemons, 5, does not include Manchuria after June, 1937, 6, not shown prior to 1932. 7, beginning 1931 includes so-called sweet lemons.

These data supplement those on world wide production and provide a view of how citrus moves in world markets.

Trend in Returns to Citrus Farmers as Compared with Cost of Living--In Orange Returns, in Grapefruit Returns

During the period 1910-18, citrus farmers received less in proportion for their oranges in California and Florida than they had to pay for goods needed for comfortable living. These two items seemed to be fairly well balanced during the period 1918 to 1931 but since 1931, living expenses have been more out of proportion to prices received by farmers in these two states than the period 1910-18. The cost of living has been greater than the income received by farmers for their oranges.

Orange prices fluctuate widely during the year, but on the other hand, retail prices of goods farmers buy remain about the same during the year.

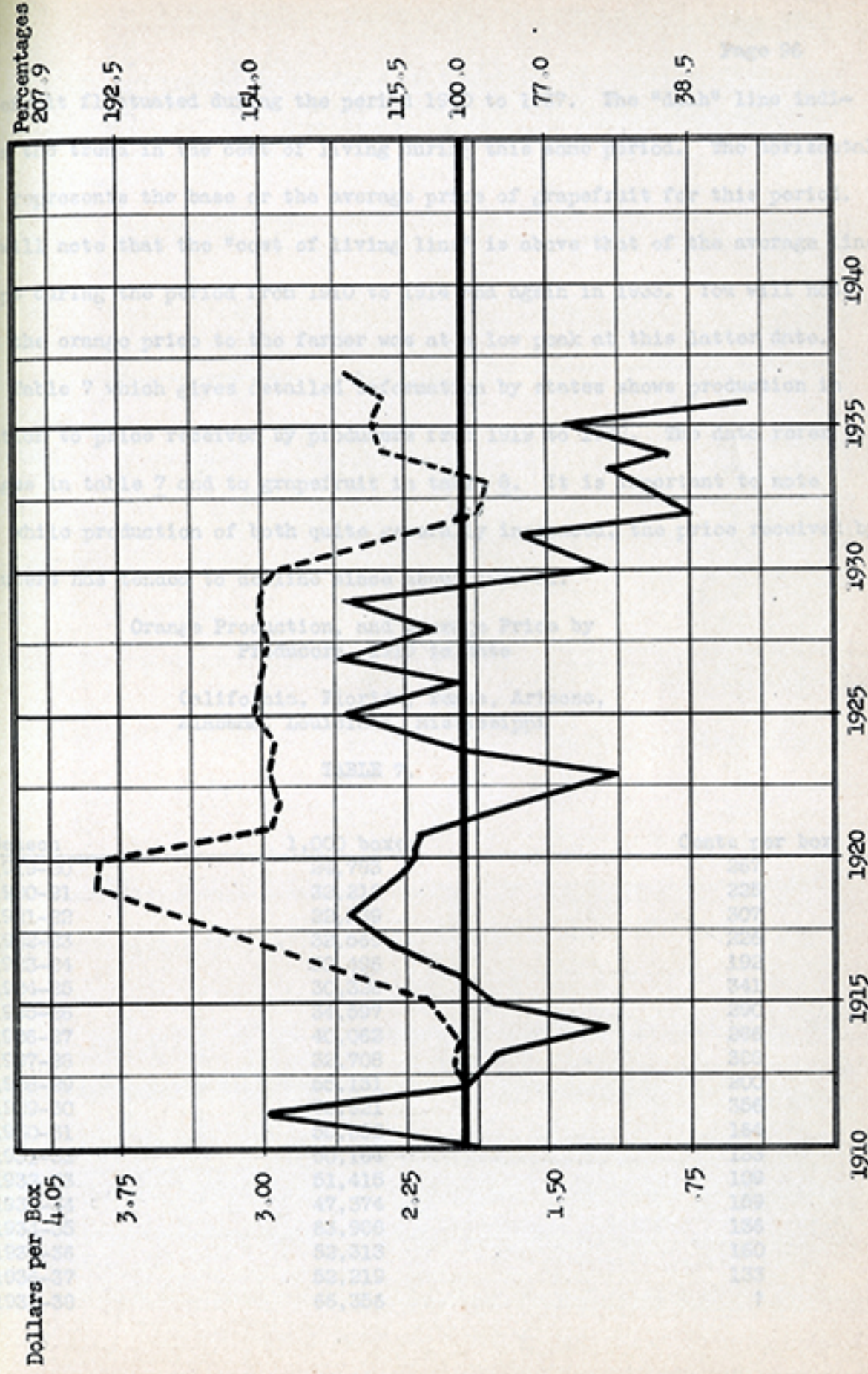
Comparison of farm price of Florida grapefruit and cost of living is even more unsatisfactory than that of orange prices.

Grapefruit price to farmers and cost of living were fairly well balanced during the period 1910-14 but since that time, the grapefruit price has been far below the cost of living. The highest prices for grapefruit during the period 1914-37 have barely reached the cost of living.

Explanation of Figure 1.

The heavy broken line indicated how and to what extent the price of

FIGURE 1.
FARM PRICE OF FLORIDA GRAPEFRUIT AND INDEX NUMBERS
OF PRICES PAID BY FARMERS, 1910 TO DATE



grapefruit fluctuated during the period 1910 to 1937. The "dash" line indicates the trend in the cost of living during this same period. The horizontal line represents the base or the average price of grapefruit for this period. You will note that the "cost of living line" is above that of the average line except during the period from 1910 to 1914 and again in 1933. You will note that the orange price to the farmer was at a low peak at this latter date.

Table 7 which gives detailed information by states shows production in relation to price received by producers from 1919 to 1936. The data refer to oranges in table 7 and to grapefruit in table 8. It is important to note that while production of both quite generally increased, the price received by producers has tended to decline since about 1930-31.

Orange Production, and Average Price by
Producers, 1919 to date

California, Florida, Texas, Arizona,
Alabama, Louisiana, Mississippi

TABLE 7.

Season	1,000 boxes	Cents per box
1919-20	24,793	267
1920-21	32,218	225
1921-22	22,539	307
1922-23	32,569	226
1923-24	30,496	192
1924-25	30,328	341
1925-26	34,597	290
1926-27	40,062	286
1927-28	32,708	303
1928-29	55,131	200
1929-30	32,621	356
1930-31	55,362	164
1931-32	50,164	133
1932-33	51,415	109
1933-34	47,374	159
1934-35	63,900	136
1935-36	52,313	160
1936-37	52,219	133
1937-38	66,356	?

This table shows a consistent increase in production of oranges during this period and a consistent decrease in the price by these seven states of oranges to the farmer during this same period. (1)

Total Grapefruit Production by Florida, California, Texas, and Arizona, and the Farm Price per Box.

TABLE 8.

Season	1,000 boxes	Dollars per box (Farm prices)
1919-20	6,293	\$ 2.06
1920-21	6,576	2.17
1921-22	7,047	2.11
1922-23	8,255	1.84
1923-24	9,459	1.27
1924-25	9,970	1.61
1925-26	8,610	2.57
1926-27	9,846	1.86
1927-28	9,578	2.78
1928-29	13,250	1.67
1929-30	11,169	2.41
1930-31	18,934	1.20
1931-32	15,147	1.03
1932-33	15,149	.84
1933-34	14,353	1.12
1934-35	21,367	.83
1935-36	18,329	1.05
1936-37	29,751	.80
1937-38	27,590	?

This table shows a consistent increase in the production of grapefruit by these four states which are the chief states in the production of grapefruit.

The farm price, on the other hand, was consistent in decreasing but very much more irregularly than the farm price of oranges during the same period

-
1. Agricultural Outlook Charts, Fruit and Nuts, 1938, U. S. Department of Agriculture, Bureau of Agricultural Economics, Washington, D. C. p. 13 October, 1937.



MAKSH SEEDLESS GRAPEFRUIT ON THE TREES

Courtesy- Florida Citrus Exchange

as shown in Table 7. (1)

TABLE 9.

Carlot Shipments of Oranges from Florida, by Months.

For the period of 1920-21 to 1936-37, the average monthly shipments have been as follows:

<u>Month</u>	<u>Number of Cars</u>
September	12
October	732
November	3148
December	4339
January	3984
February	3714
March	3457
April	2706
May	1732
June	527
July	42
August	5 (2)

There is a tendency in the planting of oranges to plant late bearing trees. This table produced in the index will show that much more late fruit is being produced. March, April, May and June show much larger shipments in

-
1. Agricultural Outlook Charts, Fruits and Nuts, 1938, U. S. Department of Agricultural, Bureau of Agricultural Economics, Washington, D. C. p. 19 October, 1937
 2. Rhodes, N. From Field to Market. Bulletin, Series No. 86, p. 84. State Department of Agriculture, April, 1938.

recent years.

Trend in Value as Compared with Production Since 1920.

Orange and grapefruit production has increased sharply since 1928-29. This no doubt has taken place because of a greater interest in citrus growing, consequently more trees have been planted and better care has been given to all producing. Soon after the increase of production, prices took a pronounced downward trend and reached a low point in 1936-37. This of course is discouraging to farmers or citrus growers and especially so because the cost of living has remained on a higher level than farm prices for citrus.

Figures 2 and 3.

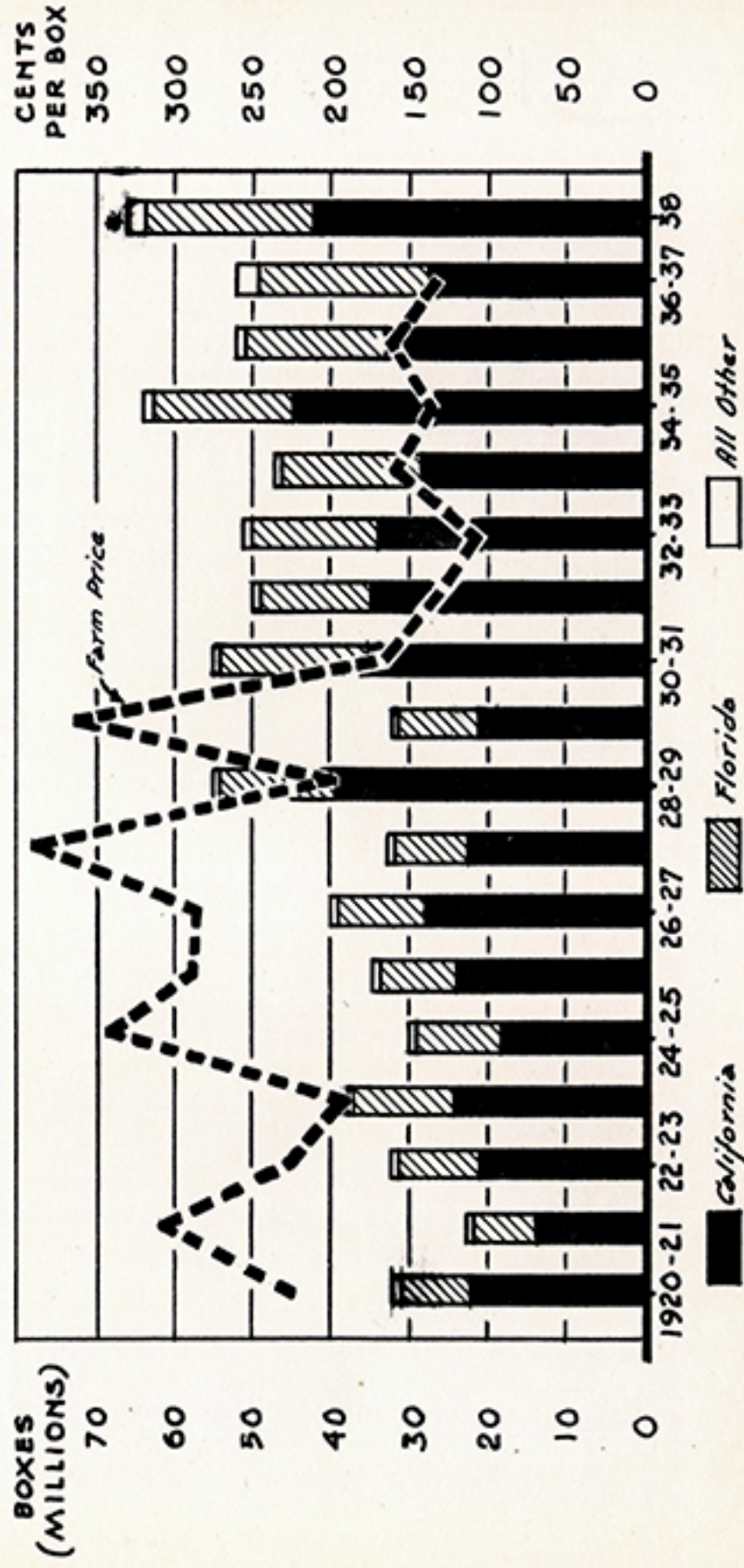
Both graphs are self-explanatory. The columns indicate production in boxes and the "dash line" shows how prices to the farmer have fluctuated over the period 1920-1938.

Charts and figures are taken from pages 13 and 19, Fruits and Nuts, 1938, Agricultural Outlook Charts, U. S. Department of Agriculture, Bureau of Agricultural Economics, Washington, D. C. October, 1937.

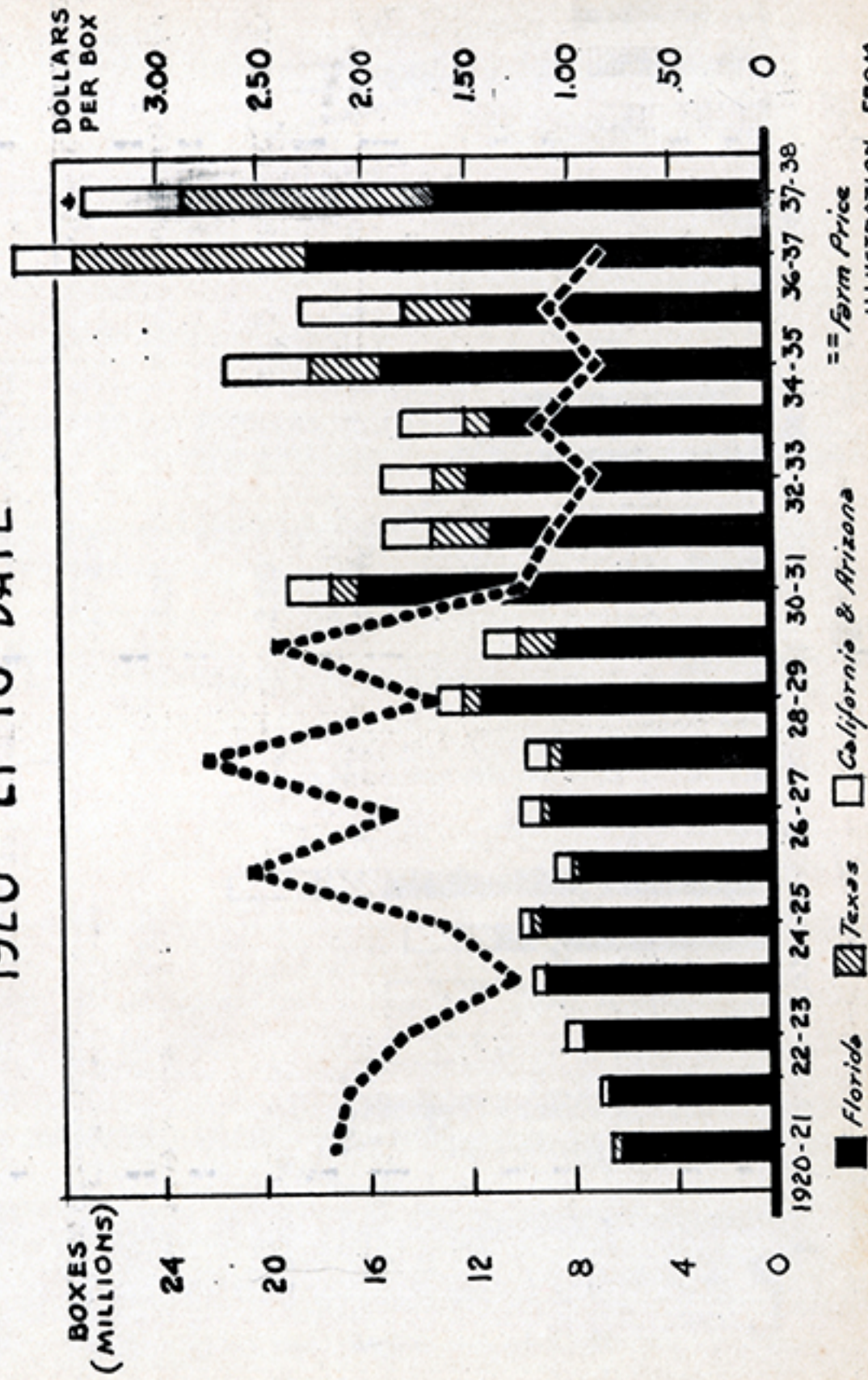
Possible Continued Increase in Production Due to Age of Trees

Out of the 12,333,773 producing orange trees of 1934, 9,719,447 were of the proper age to yield a very definite and large increase, and of the 5,198,872 grapefruit trees, 4,162,173 were of the proper age to show a large increase in production. In addition to these yielding trees, there was an average of 509, 510 orange trees planted during the four year period 1931-34, and an average of 1,937,065 grapefruit trees planted during the same period. This means that there is a large number of producing trees added annually to the trees already yielding a larger increase each year because of age. The new trees beginning to bear fruit do not indicate all the increased production.

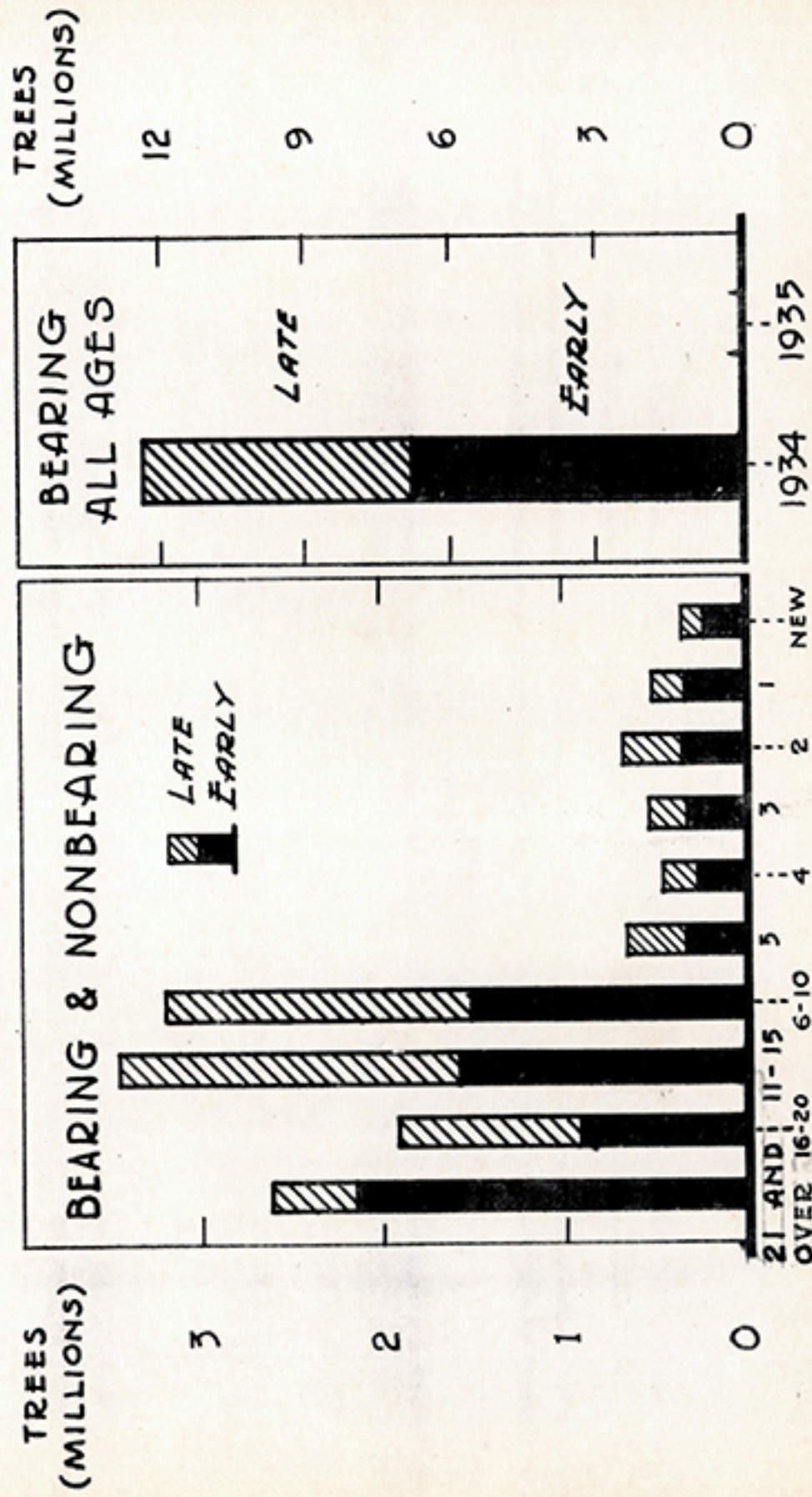
ORANGE PRODUCTION & FARM PRICE 1920-21 TO DATE



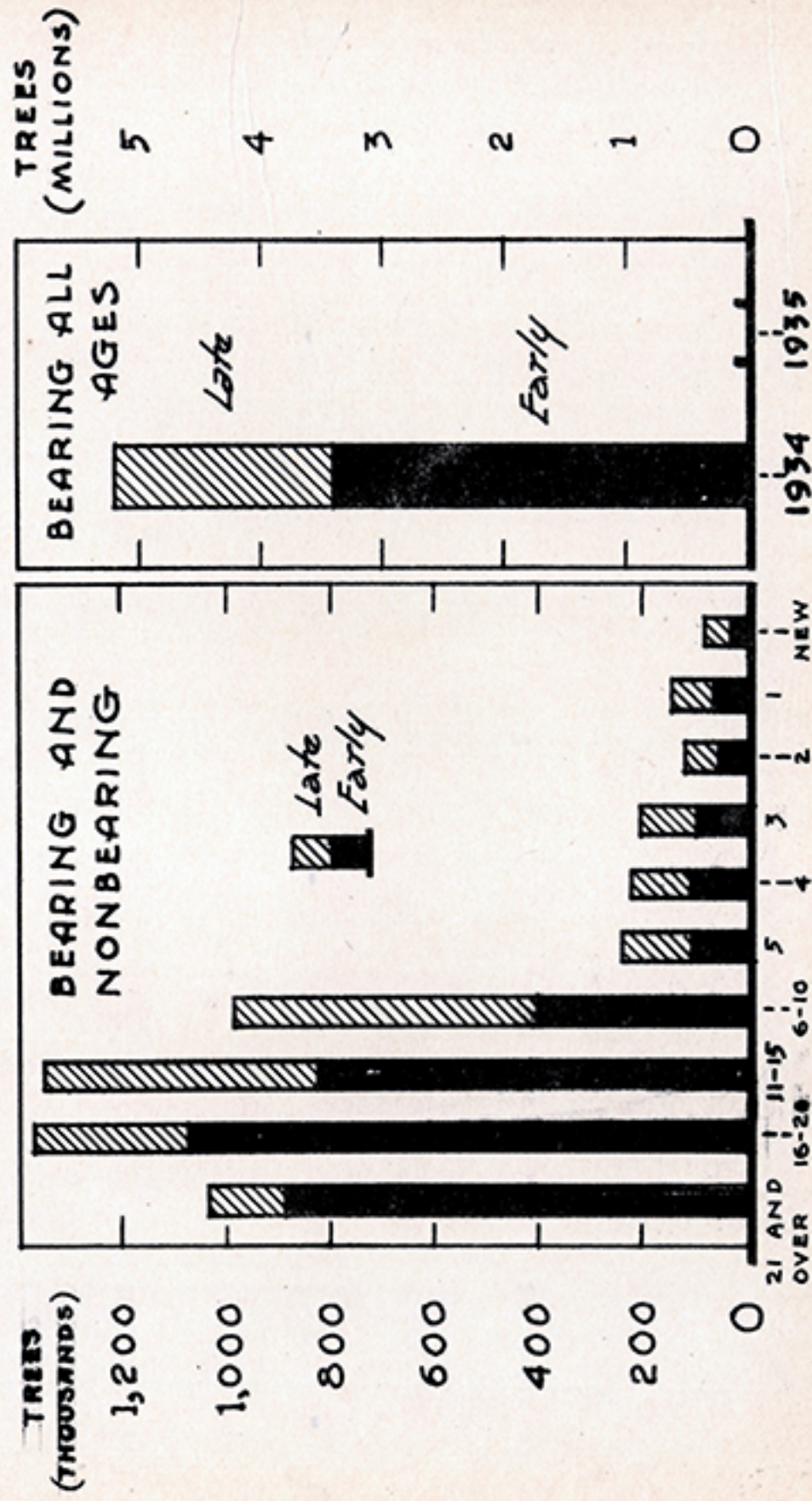
GRAPEFRUIT PRODUCTION & FARM PRICE 1920-21 TO DATE



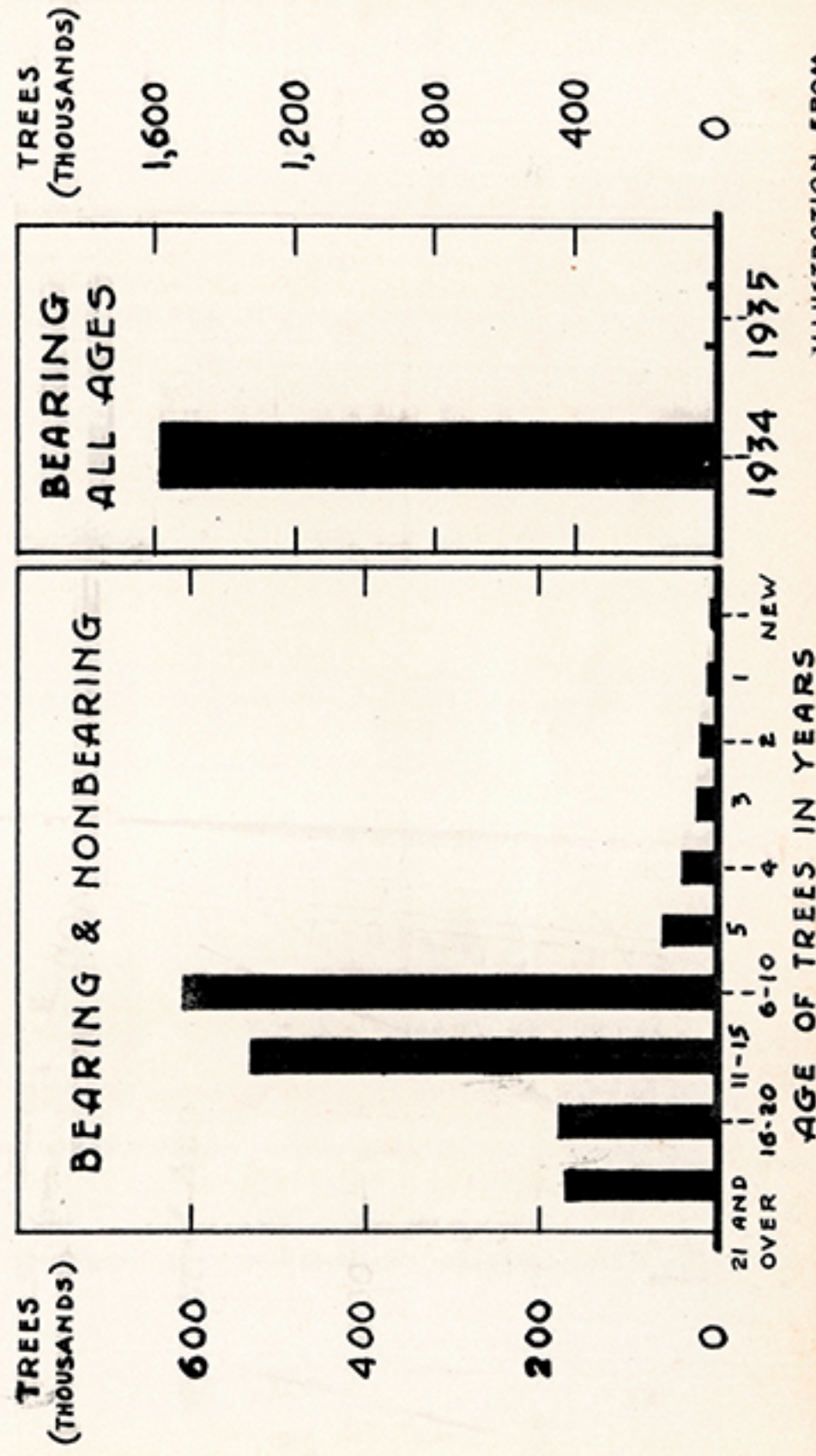
ORANGE TREES, FLORIDA: NUMBER BY AGE AND VARIETY GROUPS 1934



GRAPEFRUIT TREES, FLORIDA: NUMBER BY AGE AND VARIETY GROUPS, JULY 1, 1934



TANGERINE TREES, FLORIDA: NUMBER BY AGE GROUPS, JULY 1, 1934



The productive capacity of older trees must be considered.

Explanation of Figures 4 and 5.

The dark part of each line shows how many early bearing trees there are and how old each is. The lighter part of each column indicates how many late bearing trees and their ages. The large column at the right indicates the total number of late and early trees growing at this period. It shows that there are a few more early producing trees than late producing trees.

Explanation of Figure 6.

This graph is self-explanatory and is simpler than either of the others because there is only one item included - ages of trees.

The columns to left indicate the number of trees for each age and the large column to the right is a combination of the five taller columns to the left. These five columns represent the bearing tangerine trees.

Conditions Basic to Workers' Income

The return to owners will determine to a large degree the wage income to the workers in the industry. Therefore, there are presented certain data as to size of investment, total return, return per package sold, comparative costs of items involved in production, and distribution.

Estimated Total Investment and Returns to Industry in State

The investment in Florida citrus groves, grove homes, outbuildings, packing houses, trucks, machinery and other equipment is estimated at \$400,000,000. Furthermore, it is estimated that an average of more than \$31,000,000 is invested annually in producing and marketing the Florida citrus crop. Over 350,000 acres are planted with groves, much of which cost the owner better than \$1,000 per acre. The average present appraised value of

groves without buildings or equipment is not quite \$150 per acre. The total number of packing houses of various types including canning plants is approximately 400.

The Florida State Marketing Bureau estimates that the average annual gross return for citrus, f.o.b. Florida, is more than \$47,000,000 leaving an average of \$16,000,000 to the grower after the production and marketing costs have been taken care of. After the grower deducts for interest on his fixed investment, for depreciation and taxes, there is little left for the owner's crop speculation. Nevertheless, a great many people including the grower have consistently made a good living from this important industry. The benefits are widespread, flowing into all the channels of commerce and probably directly affecting the lives of 500,000 persons in Florida and many more persons in other states.

The actual gross returns in 1935-36 for citrus including that trucked out of state, canned in the state, and consumed in the state, was \$51,427,000 and the net on-the-tree value approximately \$19,367,000 from a grand total volume of approximately 28,500,000 boxes of 74,000 cartons.¹

The Nature and Distribution of Costs Involved in Production, and Unit Returns, for Florida

J. E. Turlington compiled data about costs and returns for ten separate groves from 1916-17 to 1931-32.

In table 2, these data are given by years; and in table 10, they are reported by grove;

1. Scruggs, Frank H., "Florida's Half-Billion Dollar Industry", Florida Grower, p. 9, September, 1936

TABLE 9.

RELATION OF YIELD PER ACRE* TO COSTS AND OTHER FACTORS
BY YEARS FOR 10 GROVES, 1916-17 to 1931-32

This table reads as follows:

Season	Box per Acre	Receipts per Acre	Costs per Acre	Returns on Capital	Receipts per box	Cost per box	% of Total Grapefruit
1916-17	171	\$318	\$124	\$194	\$1.86	\$.72	28.7
1917-18	210	654	153	501	3.11	.73	38.9
1918-19	273	902	214	688	3.30	.78	23.2
1919-20	249	689	238	451	2.77	.96	46.4
1920-21	235	481	209	272	2.05	.89	31.0
1921-22	221	615	210	405	2.78	.95	44.1
1922-23	271	447	213	234	1.65	.79	34.0
1923-24	233	341	187	154	1.47	.80	34.3
1924-25	188	512	172	340	2.73	.92	39.2
1925-26	196	439	187	252	2.24	.96	37.4
1926-27	231	400	207	193	1.73	.90	33.1
1927-28	232	761	200	561	3.28	.86	46.7
1928-29	223	162	222	60	.73	1.00	26.4
1929-30	333	574	242	332	1.73	.73	53.2
1930-31	260	262	196	66	.98	.73	28.9
1931-32	199	189	158	31	.95	.72	44.1
Weighted Average	235	\$468	\$197	\$271	\$1.99	\$.84	37.4

*Young groves adjusted for acreage to age 15 for all factors.

The average annual yield per acre of groves five years old and over was 202 boxes, and the cost, \$178, or a cost per box of 83 cents. Adjusting the young bearing trees to age 15 resulted in increasing the average yield to 235 boxes, and costs to \$197 per acre; but reduced the cost per box to 84 cents.¹

In the table following, Turlington shows how the costs and returns are related to each of the ten groves studied.

1. Turlington, J. E., "Cost, Yields, Receipt and Profits, Ten Groves for Sixteen Years, 1916-17 to 1931-32 Inclusive", Proceedings of Florida State Horticultural Society, 1933, p. 25.

TABLE 10
RELATION OF YIELDS PER ACRE TO COSTS AND OTHER FACTORS*
BY GROVES, 16-YEAR AVERAGE, 1916-17 to 1931-32

This table reads as follows.

Grove Number	Yield Boxes	Total Costs	Fertilizer Cost	Receipts	Returns on Cap.	Price Box	Cost per box	% of Total Grapefruit
324	172	\$113	\$ 57	\$264	\$151	\$1.54	\$.66	69.1
506	202	187	63	351	164	1.73	.93	46.3
660	214	183	67	470	287	2.19	.36	28.4
584	223	193	89	450	257	2.02	.37	29.7
582	229	195	96	584	389	2.55	.85	15.7
583	230	215	89	610	395	2.65	.93	13.0
589	234	207	67	311	104	1.33	.86	64.1
592	240	204	61	346	142	1.44	.85	63.9
581	306	231	103	718	487	2.34	.75	10.7
591	342	254	76	498	244	1.46	.74	66.0
Weighted Average	235	\$197	\$ 72	\$468	\$271	\$1.99	\$.84	37.4

* Young bearing grove adjusted to age 15 for all factors. (1)

The above data will be understood better with the following supplementary information. The total acreage of the ten groves increased from 477 acres in 1916-17, to 626 acres in 1931-32. The author is of the opinion that these groves ranked above the average of the groves in the state.

Costs as used include costs of all labor and supervision, hired or otherwise, use of work stock, power and equipment, fertilizer, bluestone, dust spray, and other materials, taxes, and any miscellaneous expenses chargeable to the grove.

Receipts were what the grower received for the fruit on the tree, after all picking, hauling, packing, and marketing charges had been deducted.

1. Turlington, J. E., "Cost, Yields, Receipts and Profits, Ten Groves for Sixteen Years, 1916-17 to 1931-32 Inclusive", Proceedings of Florida State Horticultural Society, p. 27, 1933.

The measure of profits used is returns on capital, the difference between receipts and costs. Interest - an important item of costs - has not been included as a cost because of the measure of profits selected and the great fluctuations in grove values.

Both yields and costs per acre of citrus increase with age of the trees up to maturity. Yields increase faster than costs. Trees have been adjusted to the age of 15 years so that all factors will remain as stable as possible.¹

Detailed Information About Costs

Tables 11--13 supply detailed data as to costs to be met as the industry has been operated in Florida.

TABLE 11.

Costs and Returns Per Box 1927-28 to 1936-37 For
Florida Oranges

Records and Estimates Season	Cost of Production (2) Before Picked	Cost of Picking, Hauling, Packing, Selling.	Estimated Gross f. o. b. Returns Florida Points	Estimated (1) Net Returns to Growers Commercial Shipments
ORANGES	Per Box	Per Box	Per Box	Per Box
1927-28	\$.72	\$1.30	\$4.16	\$2.14
1928-29	.72	1.28	2.12	.12
1929-30(3)	.80	1.30	3.30	1.20
1930-31	.48	1.10	2.15	.57
1931-32	.60	.95	2.30	.75
1932-33	.48	.90	1.48	.10
1933-34	.46	.87	1.71	.38
1934-35	.45	.90	1.85	.50
1935-36	.45	.95	2.30	.90
1936-37	.42	.93	2.50	1.15
10-Year Average	.53*	1.02*	2.25*	.70*

1. Ibid. p. 28.

- NOTES: (1) Net Return before deducting for interest, depreciation and taxes.
 (2) Cost of production includes fertilizer, spray materials, cultivating, spraying, pruning, etc., but not interest, taxes and depreciation.
 (3) "Fruit fly" season.
 * Weighted average. (1)

TABLE 12.

Costs and Returns Per Box 1927-28 to
 1936-37 for Florida Grapefruit

Records and Estimates Season	Cost of Production (2) Before Picked	Cost of Picking, Hauling, Packing, Selling.	Estimated Gross f.o.b. Returns Florida Points	Estimated (1) Net Returns to Growers Commercial Shipments
Grapefruit	Per Box	Per Box	Per Box	Per Box
1927-28	\$.52	\$1.25	\$3.28	\$1.51
1928-29	.52	1.25	2.02	.25
1929-30 (3)	.60	1.25	3.05	1.20
1930-31	.36	1.05	1.50	.09
1931-32	.40	.85	1.50	.25
1932-33	.38	.85	1.16	.07
1934-35	.39	.83	1.51	.29
1935-36	.37	.84	1.29	.08
1936-37	.39	.87	1.87	.61
	.30	.83	1.46	.35
10-Year Average	.42*	.99*	1.82*	.41*

- NOTES: (1) Net Return before deducting for interest, depreciation and taxes.
 (2) Cost of production includes fertilizer, spray materials, cultivating, spraying, pruning, etc., but not interest, taxes and depreciation.
 (3) "Fruit fly" season
 *Weighted Average (2)

1. Rhodes, Neil; "From Field to Market with Florida Vegetables and Citrus Fruits", Published by Florida State Department of Agriculture, Tallahassee p. 105, New Series No. 88, April, 1938.
2. Ibid. p. 130

TABLE 13

Costs and Returns Per Box
1927-28 to 1936-37
For Florida Tangerines

Records and Estimates Season	Cost of Production (2) Before Picked	Cost of Picking, Hauling, Packing, Selling.	Estimated Gross f.o.b. Returns Florida Points	Estimated (1) Net Returns to Growers Commercial Shipments
TANGERINES	Per Box	Per Box	Per Box	Per Box
1927-28	\$.81	\$1.70	\$5.28	\$2.77
1928-29	.81	1.70	2.90	.39
1929-30 (3)	.90	1.70	3.50	.90
1930-31	.54	1.50	1.95	.09
1931-32	.75	1.25	2.05	.05
1932-33	.56	1.16	1.42	.30
1933-34	.56	1.05	1.80	.19
1934-35	.55	.95	1.66	.16
1935-36	.55	1.10	2.00	.35
1936-37	.50	1.15	1.45	.20
10-Year Average	.61*	1.24*	2.04*	.19*

- NOTES: (1) Net Returns before deducting for interest, depreciation and taxes.
 (2) Cost of production includes fertilizer, spray materials, cultivating, spraying, pruning, etc., but not interest, taxes and depreciation.
 (3) "Fruit fly" season
 * Weighted Average. (1)

Some data on detailed costs for the State of California are included.

They provide more detailed information.

TABLE 14

Per Box Cost to Growers

	Maximum	Minimum	Difference %
Shook	\$.1890	\$.1290	46.0

Paper	\$.0700	\$.0340	106.0
Nails	.0071	.0051	39.2
Label and paste	.0080	.0051	57.0
Box strapping	.0060	.0034	76.5
Miscellaneous supplies	.0232	.0065	258.0
Packing house labor	.0173	.0055	224.0
Packing labor	.2375	.1379	72.5
Light and power	.0330	.0165	100.0
Repairs	.0198	.0033	197.0
Management salary	.0630	.0292	115.5
Waxing and Misc. wax	.0840	.0025	409.0
Packing cost total	.6121	.4360	24.9

Overhead Expenses:

Office salary	\$.0400	\$.0195	105.0
Taxes	.0171	.0043	298.0
Insurance	.0163	.0020	714.0
Interest	.0281	.0000	100.0
Office Expense	.0078	.0014	455.0
Postage	.0018	.0007	157.0
Telephone and Telegraph	.0080	.0016	500.0

Total overhead expense	.0978	.0524	66.1
------------------------	-------	-------	------

Net cash revenues	1.1673	.7384	59.5
-------------------	--------	-------	------

Reserves:

Depreciation	.0712	.0300	137.0 (16)
--------------	-------	-------	------------

-
16. Daybell, F., "Are Packing Houses Being Run as Efficiently as They Should Be?" The California Cultivator. Vol. 21, No. 6, p. 196, April, 1936.
-

Chapter IV.

THE WORKERS, THEIR CLASSIFICATION, RACE,
SEX, SCHOOLING, AND ORGANIZATIONThe Worker in Groves, Packing
and Canning Plants.

From the Florida State Census of 1935, information has been obtained about the varied workers in this field. Such information supplements the information in the chapter on the Nature of the Work.

An Estimate of Total Workers
in the Industry

Table 15.

(Excludes all persons 10 years of age and less)

		Per Cent
1. Grove workers (all types) - - - - -	6,193	54.8
2. Packing " " " - - - - -	2,489	22.0
3. Canning " " " - - - - -	512	4.5
4. Miscellaneous " " - - - - -	1,858	16.2
5. State employees - fulltime - - - - -	228	2.0
6. " " part time - - - - -		.5
Total fulltime workers -	11,260	
" including 52 part time	11,312 (1)	

The above data show that over 50% of these workers are in grove occupations; and that canning, as yet, uses a small proportion, about 4.5%.

1. These figures are probably inaccurate. The total, even in 1935, was surely far in excess of 11,300 persons. In the section on canning, (chapter II), the number engaged in canning in 1937-38, is estimated at 6,144. The figures in this chapter are, therefore, valuable to show proportional distribution of workers rather than actual number.

Table 16.

Totals of Persons Employed in Various Occupations
in Citrus Industry (1935)A. General groups

		Per Cent
1. Total of all types of workers - - - - -	11,260	
2. Total white women workers - - - - -	1,548	13.7
3. Total white men workers - - - - -	8,176	72.6
4. Total negro women workers - - - - -	44	.4
5. Total negro men workers - - - - -	1,301	11.6

6. Total all with common school education - - -	5,778	51.3
7. Total all with high school education - - -	4,092	36.3
8. Total all with college education - - -	961	8.5
9. Total all grove workers above 10 yrs. - - -	6,193	54.8
10. Total all packing workers " " " - - -	2,489	22.0
11. Total all canning " " " " - - -	512	4.5
13. Total all state employees - - - - -	228	2.0

B. Grove Workers

1. Total grove "workers"- - - - -	1,964	17.4
2. Total pickers - - - - -	764	6.8
3. Total grove caretakers - - - - -	142	1.3
4. Total grove renter - - - - -	3	0.0
5. Total grove owner - - - - -	557	5.0
6. Total grove managers - - - - -	85	.8
7. Total grove foremen - - - - -	185	1.6
8. Total grove contractors - - - - -	6	0.0
9. Total grove growers - - - - -	2,493	22.1
10. Total grove developers - - - - -	3	0.0
11. Total grove operators - - - - -	6	0.0
12. Total grove cutters - - - - -	5	0.0
13. Total grove salesman - - - - -	2	0.0
		<u>55.0</u>

C. Packing houses, workers

1. Total packers - - - - -	1,804	16.0
2. Total graders - - - - -	147	1.0
3. Total box makers - - - - -	67	0.6
4. Total nailers - - - - -	15	0.1
5. Total workers - - - - -	272	2.4
6. Total foremen - - - - -	87	0.8
7. Total owners - - - - -	11	0.1
8. Total managers - - - - -	69	0.6
9. Total checkers - - - - -	16	0.1
		<u>22.1</u>

D. Canning plant workers

1. Total workers - - - - -	206	1.8
2. Total peelers - - - - -	9	0.1
3. Total sectioners - - - - -	4	0.0
4. Total foremen - - - - -	8	0.1
5. Total office workers - - - - -	11	0.1
6. Total miscellaneous - - - - -	141	1.3
		<u>3.4</u>

E. All other workers

1. Total general workers - - - - -	1,379	12.2
2. Total fruit shippers - - - - -	36	0.4
3. Total testers - - - - -	4	0.0
4. Total inspectors - - - - -	86	0.8
		<u>13.4</u>

From A of table 16, note the following: that the industry is conducted primarily by white men and women; that women constitute a small group by themselves; that in the main, elementary and high school education is characteristic of the industry, but that nearly a thousand have some college education; that certain occupations include a negligible number of employees, e. g., contractor, grower, developer, cutter, checker, peeler, sectioner, and testers.

Race and Sex of Workers.

Table 17.

All Groups except State Employees.

		Per cent
White men - - - - -	8,151	74.3
White women - - - - -	1,506	13.7
Negro men - - - - -	1,274	11.6
Negro women - - - - -	43	.4
Total	10,974	

Employees or Workers as to
Age and Service Group ex-
cluding State Employees

Table 18.

Age	Service Group			Total	Percentage
	Grove	Packing	Canning		
10 yrs to 20 yrs	324	327	115	776	8.9
21 " " 30 "	1278	1093	172	2543	27.6
31 " " 40 "	1166	611	101	1878	20.4
41 " " 50 "	1133	292	73	1498	16.3-
51 " " 60 "	1002	120	35	1157	12.54
61 " " 70 "	865	34	14	913	9.9
71 " " 80 "	375	11	1	387	4.2
81 " " 97 "	50	1	1	52	.4-
Grand Total	6,193	2,489	512	9,194	150.0

Distribution of Workers as to Age
Groups, Race and Sex (1)

Table 19.

Age Groups	White		Negro		Total
	Men	Women	Men	Women	
10 - 20 yrs.	503	271	117	8	899
21 - 30 "	2130	517	457	23	3127
31 - 40 "	1630	303	339	4	2276
41 - 50 "	1421	197	200	5	1823
51 - 60 "	1153	107	102	2	1364
61 - 70 "	876	101	62	1	1040
71 - 80 "	390	31	16	0	437
81 - 90 "	48	9	3	0	60
	8151	1536	1296	43	11,026

The age data of workers in this industry contains some significant facts, as follows: That ages 21 to 60 is the typical range of ages in all three service groups; that an appreciable number of employees are in ages 61 to 97, there having been one reported 97 years old; that packing and canning utilizes a larger proportion of persons in age groups 10 to 50 years particularly 20 to 40 years; that most of the women are in age groups 10 to 50 years; that negro women constitute a negligible group as to size; and that this is primarily a field of work for men.

The Education of Workers
As Revealed in the State Census for All
Except State Employees

A. Grove Workers

Table 20

	Number	Percentage
With common school education -	3,393	54.6
With high " " -	2,016	32.4
With college " -	675	10.8
With education unknown -	131	2.2

1. This does not include State employees and a few miscellaneous workers.

The discrepancy between 4,215 in this table and the total of grove workers (6,193) is accounted for by the fact that in many returns, no data about this matter were reported in any of the four phases.

B. Packing Workers

Table 21.

	Number	Percentage
With common school education	- 1,272	50.9
With high " "	- 1,124	45.0
With college " "	- 70	2.8
With education unknown	- 30	1.3
	<u>2,496</u>	<u>100.0</u>

C. Canning Workers

Table 22.

	Number	Percentage
With common school education	- 221	42.5
With high " "	- 260	50.0
With college " "	- 31	6.0
With education unknown	- 8	1.5
	<u>520</u>	<u>100.0</u>

D. Other Workers

Table 23.

	Number	Percentage
Attended common school	- 892	48.5
Attended high school	- 692	38.1
Attended college	- 185	10.0
Education not known	- 69	3.4
	<u>1,838</u>	<u>100.0</u>

No information is available as to the training of the state employees. The nature of the work, however, is such that some of these workers must be highly educated professionally including advanced postgraduate research study in universities.

Personnel Concerned with
Buying and Selling Citrus

Table 24.

Groves "Others" listed as dealers, buyers, brokers, agents, peddlers	Schooling			Total
	Common	H. S.	College	
	0	1	1	2
	66	103	39	213
	66	109	40	215

This type of worker attracts a large proportion of persons with high school and college training, amounting to 69% of this group. College trained personnel constitute 18% of the group.

Managerial Group

This group includes association executive, superintendents, foremen, managers, in groves, packing houses, canneries and elsewhere.

Table 25.
Schooling of Workers

	Grove			Packing			Canning			Others		
	Com.	H.S.	Coll.	Com.	H.S.	Coll.	Com.	H.S.	Coll.	Com.	H.S.	Coll.
Foremen	99	76	9	25	50	12	1	4	3	17	23	2
Managers	23	23	10	15	41	13		4	4			
Supts.	4	2	5									
Associa- tion executives										1	16	6
	131	101	24	40	91	25	1	8	7	18	39	8

Totals in educational groups: common or elementary schooling - 170; high school education - 239; college education - 64. In percentage there are as follows:

Managerial group with elementary education	-	36.4%
" " " high school	"	- 50.6%
" " " college	"	- 33.4%

Manual Worker Group

This group includes "workers", pickers, caretakers, cutters, packers, graders, box makers, nailers, operators, checkers, poolers, cannery laborers (general), fruit hauler and fruit loader.

Table 26.

					Totals	Percentage
Manual workers with common school education					4,201	- 60.5
"	"	" high	"	"	2,367	- 34.1
"	"	" college	"	"	194	- 2.8
"	"	education unknown			182	- 2.6
Totals					6,944	100.0

Miscellaneous Occupations.

A small group designated as caretakers seem to exercise the duties of watchmen in groves, packing houses and canneries. Probably in groves, their work is manual labor. They are practically all white with a common school education.

Renters and owners may or may not be occupied with duties in the industry. In many cases, the owner is an absentee owner and the grove is his investment. The renter may perform a great variety of duties, or none. If the latter, it is considered an investment. Those with common school education total 187; high school, 247; college, 124. This group not only represents a cross section educationally but includes a large proportion of college trained men (22%).

Growers are directors of groves and are represented as follows: 1049 - common school; 945 - high school; 481 - college. About one-fifth are college trained.

The state census listed eleven men as owners of packing houses. The group is too small for related data to be significant. Twelve office workers are listed. These are apparently secretarial workers described in

another part of this study. There is a scattering group unidentified as to work, of about 140 persons. These are practically all white men.

There is a small group of 37 fruit shippers, all white men with common and high school education.

Eighty-six inspectors are reported, 21 with college training, 48 with high school education.

Contractors and developers also are reported, but no other data given. These are very few in number.

Women of the white race appear mostly in work in packing and canning. In the latter they are canners, office workers, and peelers. In packing houses, they are packers and graders. One hundred white women appear in the grove group, most of whom are listed as "growers". Their typical schooling is elementary and high school.

Negroes are employed almost exclusively in groves. They are manual workers and most have but elementary schooling.

Organization of Producing Groups

The law of Florida encourages cooperative efforts, among the producers of various agricultural products.¹ A study compiled between March 13, and September, 1937, shows many cooperative enterprises in Florida, but no statewide organization of that kind. Forty-four counties of the sixty-seven are represented. In addition, there were nine groups of affiliated cooperatives. Seventy-eight cooperatives were concerned with citrus.² The Florida Citrus

-
1. Bulletin No. 76. New Series, Dec. 1934, Cooperative Marketing Laws of Florida, State Department of Agriculture, Tallahassee.
 2. Brooker, M. A. and Hamilton, H. G. Farmers Cooperative Associations in Florida. Supplement to Bulletin No. 245. Agricultural Experiment Station. University of Florida, November, 1937.

Exchange, located at Tampa, exerts much influence in the industry.

A permanent association known as the "Production Managers Association of the Florida Citrus Exchange", has recently been formed among grove production managers.

The managers represented in the new association handle 30,100 acres of the grove properties owned by 1385 Florida Citrus Exchange growers. The association's objectives have been announced as:

1. Production of fruit of higher uniform quality.
2. Lowering of cost of grove production.
3. General grower producer service.¹

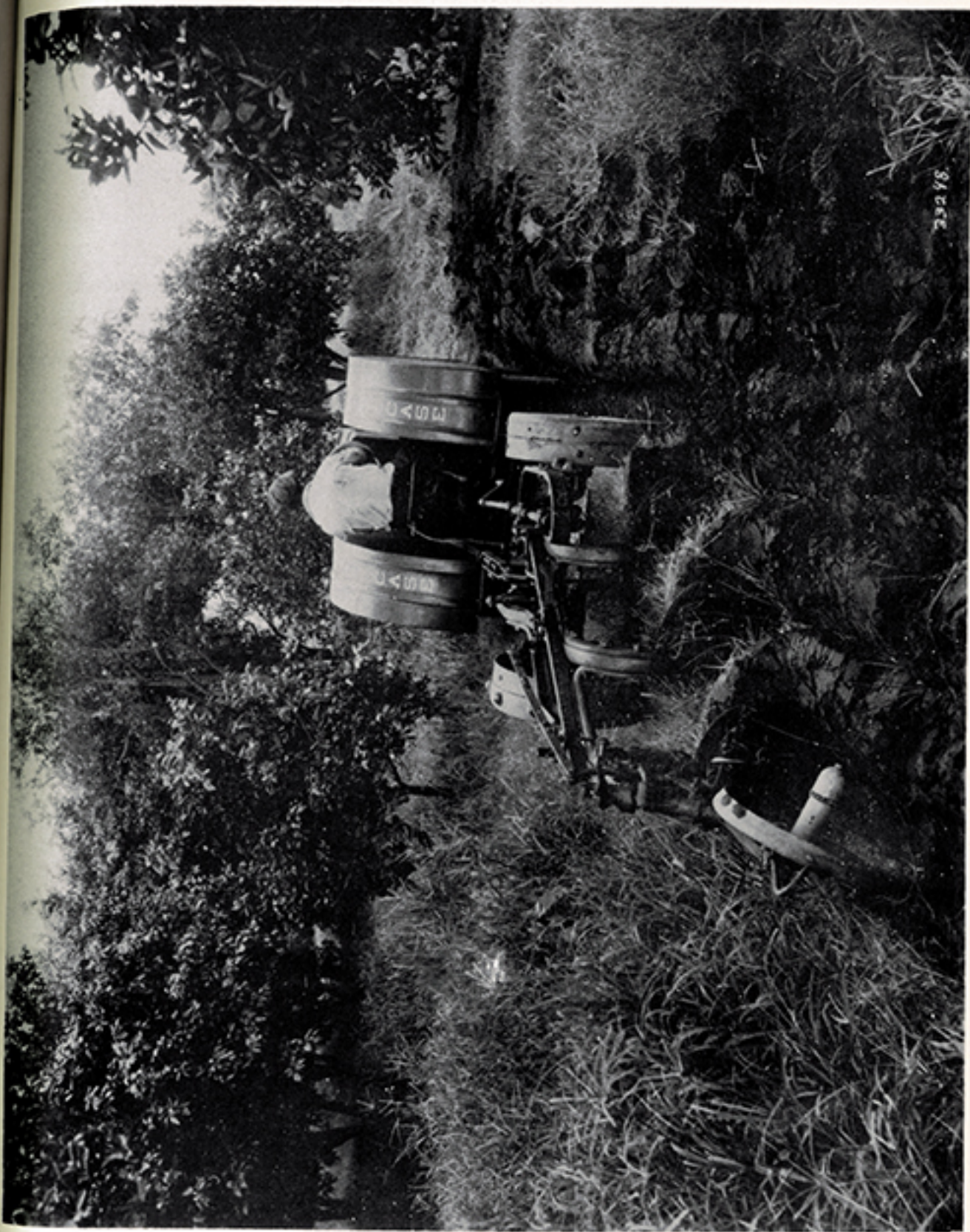
Employees Organization

Attempts at organization in the Florida citrus industry have failed almost continually since the inception of the industry in the state. Most of the efforts put forth were primarily for the well-being of the industry from the growers' and shippers' viewpoint. Not until recently has there been much emphasis placed upon organization for the employee. Recent trends in the policy of the Federal government and subsequently the state government and in the attitude of both the public and the workers have had their influence toward the definite organizing of both the employer and the employee in respective organizations for their respective benefit.

Employees

Efforts are being made to organize citrus workers along two distinctly different methods of approach, i.e., company unions and national unions.

1. Florida Grower, p. 18., March, 1937.



23278

CULTIVATION

Courtesy- J. I. Case Co.

There are about six company unions in 1937-38 and the prospects were that this number would be doubled next season. The national unions are split between the American Federation of Labor and the Committee for Industrial Organization (CIO). The A. F. of L. movement in Florida citrus is sponsored under a charter from the Tampa organization and did not have the chartered approval of the national organization in Washington. The CIO movement is directed by organizers sent out from the Washington offices of that union.

Both the A. F. of L. and the CIO are working hard to gain a foothold among the citrus workers. Their progress has been exceedingly slow since it is difficult to get a strong grip on the workers because of the seasonal aspect of the work.

Chapter V.

THE MARKETING AND OTHER
MATTERS IN THE INDUSTRYExpansion

The market for Florida citrus has been expanding steadily in past few years according to figures released by the Florida State Marketing Bureau. These figures show that in every principal market, without exception, the consumption of fruit in the 1936-1937 season was the highest that has been reached since Florida fruit has been sent to them. In some instances, the consumption over the previous 1935-1936 season increased more than 40-50 per cent.

Exports

It is to be noted in the recent survey that Florida, during the past several seasons, has shipped a negligible volume of citrus fruit to European markets, whereas California, on the other hand, has shipped a large volume to those markets, and is steadily increasing its export trade.¹ It is interesting to note that the shipment of California fruit has not been confined to the summer season only, but on the other hand, is exceedingly large during February, March, April, May and June, during which time Florida is at the peak of its production.

Florida has, in the past, shipped in one year as much as 11,000 tons of citrus fruit to foreign markets. This has steadily decreased during the past five years, and during the 1935 season dropped to a six year low of only 2,206 tons. These figures of course do not include fruit transhipped at

1. Study of Export of Florida Citrus Fruit of United Kingdom and Continental Countries, (an unpublished report for Indian River Refrigeration Terminal Co., Fort Pierce, Florida) August 15, 1936.

New York, which has been of comparatively small volume.

Florida citrus fruit, for a few years, was shipped to foreign markets by direct refrigerated steamships operating from Tampa and Jacksonville. Fruit from Florida, in many cases, was shipped in vessels not adapted to this type of service, both from the standpoint of proper carrying conditions, condition of vessels as a whole, and maintenance of regular sailing schedule.

The recent armed conflict in Spain has taken from world markets the citrus products of the largest exporter in the world. Spanish oranges have for a long time practically controlled the markets of London, Paris and Berlin. Florida growers and shippers have the opportunity at the present time to take over a large part of this trade which formerly went to Spain.

The main difficulty is to overcome the suspicion of buyers abroad who through past experience are afraid to buy Florida citrus. The practice of shippers who took the trouble to send their fruit abroad was to send the fruit which would not get a good price at home. This, together with the fact that Florida fruit went over under so many different trade names, has had a tendency to send the buyers over to a steady, guaranteed fruit such as the now world-famous "Sunkist" brand which California markets the world over.

If Florida would establish a single trade name, such as "Sealedsweet", and ship out all fruit under this name, the markets of this country and those abroad would begin to expand even more rapidly than our production.

Recent Attempts to Stabilize Citrus

A step in this direction has been taken recently in a move to organize the Florida Citrus Producers Trade Association. This association would be open to all growers and shippers and would attempt to follow a possible

four-step program: 1. Proration of shipments among producers; 2. Advertising of Florida citrus; 3. Conducting investigation and research work; 4. Engaging in a consolidated or unified marketing of Florida citrus.

Resume and General Outlook for the Future

A great many questions which are inherent in the occupational study of an industry have not been answered by this study, because there is not an accurate source of information about them. Others are answered imperfectly.

In the chapter on the Nature of the Work, the data are derived from actual visitation and study. These data are believed to be accurate. The types of workers found there do not conform to the group found in the state census.

Many trends are not well described. First, no extensive body of data exist with reference to wages or wage scale. We know some of the workers are transients, but do not know how many. The jobs are becoming specialized in groves, packing and canning. There is a strong trend to mechanization of the industry. The use of tractors, trucks, machinery spray-pumps, the great variety of machinery in packing and canning all show this. We may expect this to increase. When it does, a readjustment in types, numbers and wages of workers will result.

Shipping is done by railroads, trucks, and boats in ocean navigation. Recent experimentation in preservation of fruit may trend to eliminate much of the present system of refrigeration.

The marketing situation is quite serious. Florida citrus does not reach certain markets in appreciable quantities. It is believed that the organization of statewide cooperative plans and more promotional work will improve this. Profits in the industry, for a number of years, have been

small, or there has been a loss. Too large a share of the retail selling price is used to cover distribution, particularly transportation, or the price is too low.

There is a slight trend, shown by the work of a central Florida firm to produce by-products. This may increase to a sizable part of the industry.

It seems that too many of the workers, probably of the managerial group, are unfamiliar with the needs, and too many are unwilling to enter the obligations of the statewide agreements.

Labor is unorganized, but it may become organized. If it does, wages will be forced to a higher level, and higher prices must be had if all cost items are covered.

It is not clear that a person may enter the industry by any one well established route. Some lines of promotion are beginning to develop. Working conditions, as to hours, are variable, and during the rush season are likely to be long and tense for the workers. There is no system of security within the industry for the worker, or for the employer. Health hazards are few, and the State Board of Health helps to protect the health of the workers. One company has been considering the possibility of erecting low-cost homes for its workers. There seems to be no tendency to use the "company store" practice, or to use tokens in the place of legal tender money in payment of employees.

Much should be known about an industry as to its effect on the desirable traits of the workers, such traits are thrift, honesty in business, wholesome leisure time activities, active civic participation, cleanliness, courtesy, and good reputation in the community. The study has little data on these matters. It has been found that the workers of the manual groups are not

considered more than fair credit risks by several credit rating bureaus of the state.

There are possibilities of increasing the acreage and number of producing trees in the state. One Californian describes this possibility as follows:

There is plenty of unplanted good citrus land in Florida that can be bought at \$50 an acre. This land can be found in three different areas of production:

1. Ridge section-----200 miles long in center of state
2. "Flatwoods"-----On east, west and south of Ridge section
3. Hammocks-----Coast areas and where the "Flatwoods" approach central Ridge area.

The hammocks are the most productive and have the best quality of fruit. The "Flatwoods" and Ridge section follow in that order.

A general range of grove price is \$400 to \$1,500 per acre with some at \$2,500. Southern Flatwoods groves without good care are sometimes sold at \$250 per acre. Good care will bring them back. An average sized grove is about ten acres.¹

Outlook for the Future

It is hard to indicate future trends in technology as they may affect the citrus industry. To forecast scientific discovery, mechanical improvements and inventions, or the rise of new methods is always a hazardous undertaking. And to weigh their probable influence is still more hazardous. But possibly a few avenues of promise might be indicated in an attempt to throw light on the economic and social implications of developments just ahead.

The productivity of workers in the citrus industry has been greatly

1. Wilder, H. I., "Citrus Observation in Florida", The Californian Citrograph, p. 116, January, 1937.

increased during the past 30 years. And there seems to be no reason why this trend should not continue. The rate of increase, with slight exceptions has been consistently rising. Obviously, if this rise continues, many adjustments economically, socially, politically and legally will have to be made from time to time. If this be true, conditions in the future will as surely change as conditions in the past have been known to do. To a greater or lesser extent, every person engaged in the citrus industry, from the unskilled, uneducated day laborer in the grove to the capable, highly trained executives of citrus exchanges and packing houses, will be affected.

It should be emphasized that discoveries, inventions and techniques have come from many sources and from many areas of investigation. They have not, as many apparently would like to believe, been the product of only those who are solely engaged in seeking them. Neither have they centered about the use of machinery and power alone. Much of the increase in productivity would have been impossible were it not for the introduction, adaptability, and improvement of various citrus plants; the increased ability to combat and control the ravages of insects, pests, and diseases; the increase in scientific knowledge of how to use and replenish and improve soils; and improvements in managerial and marketing techniques. It has been the combination of all these forces that has made possible the increased efficiency which we now enjoy.

But we still have not exhausted these sources. Every year, new and startling contributions are brought to light. The seeming inexhaustibility of ideas and adaptations makes us marvel at the ingenuity of the human mind and the precisions of science. As yet maximum efficiency in production and in marketing of citrus fruits is a long way off. It cannot be reached without

social and individual costs, nor can it be stopped without social and individual costs. Yet the benefits to society and to the individual, once such a maximum has been reached, will far outweigh the costs that have been exacted.

APPENDICES

DOCUMENTS, BIBLIOGRAPHIES, STATISTICAL
DATA, STAFF OF STUDY AND CONTRIBUTORS

SECTION OF GROWERS' COST GUARANTEE LAW.

Be It Enacted by the Legislature of the State of Florida:

Section 1. This Act shall be known and called the Growers Cost Guarantee Act.

Section 2. The term "Citrus Fruit" as used herein means and includes only the fruits Citrus Grandis, Osbeck, commonly called grapefruit, and Citrus Sinensis, Osbeck, commonly called oranges, and Citrus Nobilis Dolicaea, commonly called tangerines, grown in the State of Florida.

The term "standard packed box" means 1-3/5 bushels whether in bulk or in a container.

Section 3. The Commissioner of Agriculture in his discretion and by and with the consent and advice of the Governor shall have the power to declare the existence of a State Emergency in the Citrus Industry, and upon petition or petitions signed by persons, firms, corporations, or associations, owning or controlling 50% or more of the producing acreage of citrus fruit, requesting such action, being filed with the Citrus Commission, such percentage to be based upon the survey heretofore made by the Federal Emergency Relief Administration and supplemented by such further surveys as the Citrus Commission from time to time may make, and after the Citrus Commission shall have procured from the producers, shippers, or handlers of citrus fruit, not subject to the provisions of this Act, binding agreements to conform thereto and abide by its terms, the Florida Citrus Commission shall determine and record in permanent form annually the average reasonable cost per standard pack box of producing citrus fruit and every contract, agreement, plan or arrangement with the grower by or under which his citrus fruit shall be bought, marketed, or processed shall be held to require that the person, firm, corporation, or association buying, marketing or processing said citrus fruit shall in any event pay the grower said cost of production, to be ascertained by multiplying the said cost per standard packed box as shown by the record of the Commission current at the time the contract, agreement, plan of arrangement with the grower shall be made, by the number of packed boxes so bought, marketed and processed during the season or under the particular contract, agreement, plan or arrangement if for less than a marketing season. Any contract, plan, scheme or device whereby it shall be attempted to preclude the grower from recovering such cost of production shall to that extent be held to be unlawful and against the public policy of this State, but in all other respects and particulars contracts of sale, marketing and processing shall be valid and binding and the terms thereof shall measure the rights of the respective parties.

Section 4. The provisions of this Act shall apply to any one or more of the citrus varieties embraced hereunder as may be determined by the petitions and agreements provided for in the foregoing section.

Section 5. This Act shall become effective immediately upon becoming a law.

Approved June 8, 1935.

Filed in Office Secretary of State June 8, 1935.

Chapter No. 16859, Laws of Florida, Acts of 1935.

Citrus Advertising Laws, Chapter No. 17780 of Florida laws provided for advertising Florida grapefruit; chapters 16856 (1935) and 17781 (1937) provide the same for Florida oranges; and chapters 16858 (1935) and 17782 (1937) make similar provisions for Florida tangerines.

Sections 1, 4 to 8 inclusive, 10, 11, 15 to 18 inclusive, from the Orange Advertising Law, are given below. Any one interested can secure the complete laws from Florida Statutes, or Annual Report of the Citrus Inspection Bureau for 1936-37, State Department of Agriculture, pages 60-81.

"Be It Enacted by the Legislature of the State of Florida:

Section 1. That economic waste is being fostered in the citrus industry of the State of Florida by the lack of proper advertising and dissemination of information necessary for the development and promotion of the sale of oranges, grown in the State of Florida; that such unnecessary and unreasonable waste is creating chaotic economic conditions in the citrus industry of the State of Florida of such severity as to imperil the ability of producers of oranges to contribute in appropriate amounts to the support of the ordinary governmental and educational functions, thus tending to increase and increasing the tax burdens of other citizens for the same purposes; that in the interest of public welfare and general prosperity of the State of Florida this avoidable and unnecessary loss can and should be eliminated by acquainting the general public with the health-giving qualities and the food and/or dietetic value of the different grades of oranges grown in the State of Florida.

Section 4. That the administration of this Act shall be vested in the Florida Citrus Commission which shall prescribe suitable and reasonable rules and regulations for the enforcement of the provisions thereof and shall administer the taxes levied and imposed by this Act. Said Commission shall have power to cause its duly authorized agent or representative to enter upon the premises of any handler of citrus fruits and to examine or cause to be examined by any such agent or representative any books, papers, records or memoranda bearing on the amount of taxes payable and to secure other information directly or indirectly concerned in the enforcement of this Act. Any person required to pay the taxes levied and imposed by this Act who shall by any practice or evasion make it difficult to enforce the provisions of this Act by inspection, or any person who shall after demand by the Commission, or any agent or representative designated by it for that purpose, refuse

to allow full inspection of the premises or any part thereof or any books, records, documents or other instruments in any way relating to the liability of the tax payer for the tax herein imposed or shall hinder or in any wise delay or prevent such inspection, shall be guilty of a misdemeanor and upon conviction shall be punished accordingly.

Section 5. That the Commission shall plan and conduct a campaign for commodity advertising, publicity and sales promotion to increase the consumption of oranges and may contract for any advertising, publicity and sales promotion service. To accomplish such purposes the Commission shall have power and it shall be the duty of the Commission to disseminate information:

(a) Relating to oranges and the importance thereof in preserving the public health, the economy thereof in the diet of the people and the importance thereof in the nutrition of children;

(b) Relating to the manner, method and means used and employed in the production and marketing of oranges and to laws of the State regulating and safeguarding such production and marketing;

(c) Relating to the added cost to the producer and dealer in producing and handling oranges to meet the high standards imposed by the State that insure a pure and wholesome product;

(d) Relating to the effect upon the public health which would result from a break-down of the Florida citrus industry and/or the Florida orange industry.

(e) Relating to the reasons why producers and dealers should receive a reasonable return on their labor and investment.

(f) Relating to the problem of furnishing the consumer at all times with an abundant supply of fine quality oranges at reasonable prices;

(g) Relating to factors of instability peculiar to the citrus fruit industry in general and the orange industry in particular, such as unbalanced production, effect of the weather, influence of consumer purchasing power and price relative to the cost of other items of food in the normal diet of people, all to the end that an intelligent and increasing consumer demand may be created;

(h) Relating to the possibilities with particular reference to increased consumption of oranges.

(i) Relating to such other, further and additional information as shall tend to promote increased consumption of oranges and as may foster a better understanding and more efficient cooperation between producers, dealers, and the consuming public.

Section 6. That there is hereby levied and imposed an excise tax of one cent on each standard box of oranges grown in the State of Florida.

Section 7. That every handler shall keep a complete and accurate record of all oranges handled by him. Such records shall be in such form and contain such other information as the Commission shall by rule or regulation prescribe. Such records shall be preserved by such handlers for a period of one year and shall be offered for inspection at any time upon oral or written demand by the Commission or its duly authorized agents or representatives.

Section 10. That all taxes levied and collected under the provisions of this Act shall be paid into the State Treasury on or before the 15th day of each month. Such moneys shall be kept in a special fund to be known as the "Orange Advertising Fund" which is hereby created, and all moneys coming into said special fund are hereby appropriated and made available for defraying the expenses of the administration and enforcement of this Act. All money levied and collected under this Act over and above the necessary administrative expense as provided for in this Act, shall be spent exclusively for the advertising of oranges as herein provided. Provided further, that in cases where oranges are advertised jointly with grapefruit and tangerines, or both, the Orange Advertising Fund shall only bear its pro rata share of such advertising. All taxes levied hereunder and collected through sale of said stamps by the Commission shall be paid to the Comptroller of the State of Florida for payment into said Orange Advertising Fund. Funds expended under this Act for Advertising agency within the State of Florida.

Section 11. That all costs, expenses and obligations incurred under the provisions of this Act shall be paid out of the Orange Advertising Fund upon warrant of the Comptroller when vouchers therefore are exhibited, approved by the Commission.

Section 15. That the powers and duties of the Commission shall include the following:

1. To adopt and from time to time alter, rescind, modify and/or amend all proper and necessary rules, regulations and orders from the exercise of its powers and the performance of its duties under this Act.
2. To employ and at its pleasure discharge an advertising manager, agents, advertising agencies and such clerical and other help as it deems necessary and to outline their powers and duties and fix their compensation.
3. To make in the name of the Commission such advertising contracts and other agreements as may be necessary.
4. To keep books, records and accounts of all its doings which books, records and accounts shall be open to inspection and audit by the State Auditor at all times.
5. To purchase or authorize the purchase of all office equipment and supplies and to incur all other reasonable and necessary expenses and obligations in connection with and required for the proper carrying out of the provisions of this Act.
6. To investigate and cause prosecution to be instituted for violation of the provisions of this Act.

Section 16. That any person who shall violate or aid in the violation of any of the provisions of this Act, upon conviction thereof shall be punished by a fine of not more than Five Hundred Dollars or imprisonment for a period not to exceed ninety days, or by both such fine and imprisonment in the discretion of the Court, and all fines collected for violation of this Act shall be paid into the Orange Advertising Fund.

Section 17. That this Act shall be liberally construed, and if any part or portion thereof be declared invalid, or the application thereof to any person, circumstances or thing is declared invalid, the validity of the

remainder of this Act and/or the applicability thereof to any other person, circumstance or thing shall not be affected thereby, and it is the intention of the Legislature to preserve any and all parts of said Act if possible.

Section 18. That all laws or parts of laws in conflict herewith be and the same are hereby repealed.

-----State of Florida, Citrus Inspection Bureau - Annual Report Season of 1936-1937. Pp. 68-74; Nathan Mayo, Commission of Agriculture, July, 1937.

THE FLORIDA PLANT ACT OF 1937

AN ACT to Prevent the Introduction Into the Dissemination Within This State of Insect Pests and Diseases Injurious to Plants and Plant Products of this State, to Provide for the Inspection and Control of Nurseries and the Regulation of the Sale and Distribution of Plants and Plant Products to Create a State Plant Board and to Prescribe its Power and Duties, and Making and Appropriation for the Purpose of Carrying out the Provisions of said Act.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF FLORIDA:

Section 1. This Act shall be known by the short title of "The Florida Plant Act of 1927".

Section 2. For the purpose of this Act, the following terms, when used in this Act or the rules, regulations and orders made pursuant thereto, shall be construed respectively, to mean:

Insect Pests and Diseases. - Diseases and insect pests, injurious to plant and plant products of this state, including any of the stage of development of such diseases and insect pests.

Plants and Plant Products. - Trees, shrubs, vines, forage and cereal plants, and all other plants, cuttings, grafts, scions, buds, and all other parts of plants; and fruit, vegetables, roots, bulbs, seeds, wood, lumber, and all other plant products.

Nursery Stock - All plants, trees, shrubs, vines, bulbs, cuttings, grafts, scions and buds grown or kept for or capable of propagation, distribution or sale.

Nursery - Any grounds or premises on or in which nursery stock is grown or propagated for sale or distribution.

Nurseryman - Any person engaged in the production of nursery stock for sale or distribution.

Dealer - Any person not a grower of nursery stock in this state who buys or otherwise acquires nursery stock for the purpose of reselling or reshipping independently of any control of the nurseryman.

Agent - Any person selling or distributing nursery stock under the partial or full control of a nurseryman.

Places - Vessels, railroad cars, automobiles, and other vehicles, buildings, docks, nurseries, orchards and other premises where plants and plant products are grown, kept or handled.

Persons - Individuals, associations, partnerships and corporations, whether private, public or municipal.

All words shall be construed to import either the plural or the singular, masculine or feminine, as the case demands.

Section 3. There is hereby created and established a State Plant Board, hereinafter called the Board. The said Board shall be composed of five members who shall be the same persons who constitute the Board of Control created and authorized by the provisions of Chapter 5384, Laws of Florida 1905, and all of the authority by this Act granted to the Board herein created and all the duties required of said Board shall be exercised and performed by the members of the Board of Control, acting as the State Plant Board. A majority of the members of the Board shall constitute a quorum for all purposes. The Chairman of the Board shall be selected annually by the members thereof. They shall be provided with a suitable office or offices at the University of Florida where the meetings of the Board may be held and its records shall be kept.

Section 4. It shall be the duty of the Board to protect the agricultural and horticultural interests of the State from insect pests and diseases, and to that end it is vested with power and authority to:

(1) Inspect, or cause to be inspected by duly authorized employees, plants, plant products or other things and substances that may, in their opinion, be capable of disseminating or carrying insect pests and diseases, and for this purpose shall have power to enter into or upon any place and open any bundle, package or other container containing, or thought to contain, plants or plant products or other things capable of disseminating or carrying insect pests or diseases.

(2) Carry on investigations of methods of control, eradication and prevention of dissemination of insect pests and diseases, and for that purpose may employ the necessary experts and may rent, lease or purchase the necessary land when required for this purpose;

(3) Supervise or cause the treatment, cutting and destruction of plants when necessary to prevent or control the dissemination of insect pests and diseases or to eradicate same and to prescribe rules and regulations therefor

(4) Inspect, or cause to be inspected, all nurseries in the state at such intervals as they may deem best, and they shall have plenary power to make all such rules and regulations governing nurseries and the movement of nursery stock therefrom or the introduction of nursery stock therein as they may deem necessary in the eradication, control or prevention of the dissemination of insect pests and diseases;

(5) Make rules and regulations to govern the sale and distribution of nursery stock by dealers and agents;

(6) Provide rules and regulations under which nursery stock may be brought into this state from other states, territories, and foreign countries

(7) Make such rules and regulations with reference to plants and plant products while in transit through this state as may be deemed necessary to prevent the introduction into and dissemination within this state of injurious plant pests and diseases;

(8) Demand of any person who has plants or plant products or other things likely to carry insect pests and diseases in his possession to give full information as to the origin and source of same, and it shall be a misdemeanor for such person to refuse to give the information demanded, if able to do so;

(9) Declare a dangerous insect pest or disease to be a public nuisance as well as any plant or other thing infested or infected therewith or that has been exposed to infestation or infection and therefore likely to communicate same;

(10) Declare a quarantine against any area, place, nursery, grove, orchard, county or counties within this state, other states, territories, foreign countries or portion thereof in reference to dangerous insect pests or diseases and prohibit the movement within this state or any part thereof or the introduction into this state from other states, territories or foreign countries of all plants, plant products or other things from such quarantined places or areas which are likely to carry such dangerous insect pests and diseases if such quarantine be determined, after due investigation, to be necessary in order to protect the agricultural and horticultural interests of this state. In such cases the quarantine may be made absolute, or rules and regulations may be adopted prescribing the method and manner under which the prohibited articles may be moved into or within, sold or otherwise disposed of in this state;

(11) Intercept and inspect while in transit, or after arrival at destination, all plants, plant products or other things likely to carry insect pests and diseases being moved in this state or brought into this state from another state, territory or foreign country, and if upon inspection the same be found to be infested or infected with an injurious insect pest or disease or if such material is believed to be likely to communicate or transmit same or is being transported in violation of any of the rules and regulations of the Board, then said plants, plant products or other things may be treated as necessary and released, returned to the sender or destroyed, such disposition to be determined under rules and regulations to be prescribed by the Board.

(12) Purchase all necessary materials, supplies, office and field equipment and other things and to make such other expenditures as may be essential and necessary in carrying out the provisions of this Act within the limits of the amount appropriated by law;

(13) Appoint such assistants, inspectors and other employees as may be required, and to prescribe their duties and fix their compensation, to delegate to such assistants, inspectors and other employees such powers and authority as may be deemed proper within the limits of the powers and authority conferred upon the Board by this Act;

(14) Enter into cooperative arrangements with any person, municipality, county and other departments of this state, and Boards, officers and authorities of other states and the United States for inspection with reference to insect pests and plant diseases and for the control and eradication thereof and to contribute a just proportionate share of the expenses incurred under such arrangements;

(15) Publish at regular intervals, to be determined by them, an official organ of the Board for public distribution and may from time to time publish and distribute to the public such further information as may be deemed necessary;

(16) Enforce the provisions of this Act and the rules and regulations made pursuant thereto by writ of injunction in the proper court as well as by criminal proceedings. It shall be the duty of the Attorney General, the State Attorneys, Prosecuting Attorneys, County Solicitors, and all public

prosecutors in each county to represent the Board when called upon to do so. The Board in the discharge of its duties and in the enforcement of the power herein delegated may employ counsel, send for books and papers, administer oaths and hear witnesses, and to that end it is made the duty of the various sheriffs throughout the state to serve all summonses and other papers upon request of said Plant Board.

Section 5. All rules and regulations made by the Board shall be promulgated by publishing same in the official organ of the Board, or by giving such other reasonable public notice as may be prescribed by the Board, provided that in case of emergency where it is necessary to place a quarantine to take effect immediately, promulgation may be made by proclamation of the Governor on the request of the Board. Printed copies of all acts, rules, regulations, quarantines, or notices of the Board which shall be published under the authority of the Board shall be admitted as sufficient evidence of such acts, rules, regulations, quarantines or notices in all courts and on all occasions whatsoever provided the correctness of such copies be certified to by the Chairman of the Board.

Section 6. Any person affected by any rule or regulation made or notice given pursuant to this Act may have a review thereof by the Board for the purpose of having such rule, regulation or notice modified, suspended or withdrawn. Such review shall be allowed and considered and the cost thereof fixed, assessed, collected and paid in such manner and in accordance with such rules and regulations as may be prescribed by the Board.

Section 7. The introduction into this state of any live insect or specimen of any disease injurious to plants, except under a special permit issued by the Board is hereby prohibited.

Section 8. Any person, including common carriers, who receives plants, plant products or other things sold, given away, carried, shipped or delivered for carriage or shipment within this state, as to which provisions of this Act and the rules and regulations made pursuant thereto have not been complied with, shall immediately inform the Board or an inspector thereof and isolate and hold the said plant, plant product or other thing unopened or unused subject to such inspection or other disposition as may be provided by the Board.

Section 9. Whenever the Board under the provisions of this Act shall declare a quarantine against any place, nursery, grove, orchard, county or counties of this state, or other states, territories or foreign countries as to a dangerous insect pest or disease, it shall be unlawful thereafter until such quarantine is removed for any person to introduce into this state, or to move, sell or otherwise dispose of within this state any plant, plant product or other thing included in such quarantine, except under such rules and regulations as may be prescribed by the Board.

Section 10. It shall be unlawful for any nurseryman, dealer, or agent to sell, give away, carry, ship or deliver for carriage or shipment any nursery stock except in compliance with the provisions of this Act and the rules and regulations made pursuant thereto.

Section 11. Any person who shall violate any provision or requirement of this Act or of the rules and regulations made thereunder or of any notice given pursuant thereto, or who shall forge, counterfeit, destroy or wrongfully or improperly use any certificate provided for in this Act or in the rules and regulations made pursuant thereto, or who shall interfere with or

obstruct any inspector or other employee of the Board in the performance of his duties, shall be deemed guilty of a misdemeanor and upon conviction thereof shall be punished by a fine of not less than twenty-five dollars or more than five hundred dollars, or by imprisonment for not more than six months, or by both such fines and imprisonment at the discretion of the court.

Section 12. In construing and enforcing the provisions of this Act, the act, omission or failure of any official, agent or other person acting for or employed by any association, partnership, corporation or other principal within the scope of his employment or office shall in every case be deemed the act, omission or failure of such association, partnership, corporation or other principal as well as that of the individual.

Section 13. If any section or part of a section of this Act shall for any cause be held unconstitutional, such fact shall not affect the remainder of the Act.

Section 14. For the purpose of carrying out the provisions of this Act, the sum of thirty-five thousand dollars per annum or as much thereof as may be necessary is hereby appropriated out of any funds in the treasury not otherwise appropriated, which said sum, together with all other sums appropriated under this Act shall be placed to the credit of the Board in the hands of the State Treasurer to be expended by the Board upon a written voucher drawn by the Board in duplicate stating the nature of such expenditure and the person to whom same shall be made payable, which voucher shall be submitted to the Comptroller of the State of Florida and audited and approved by him. Upon such approval the Comptroller shall draw his warrant upon the State Treasurer for the payment thereof. No voucher shall be issued or drawn by the Board for the payment of any moneys except the same be approved by said Board and countersigned by the Chairman or by such member of the Board as may be acting as Chairman in the absence or disability of the Chairman, and the Secretary thereof.

Section 15. The State Plant Board created by this Act is hereby declared and created a corporate body. The said corporation shall have power to contract and be contracted with and to have and possess all the power of a body corporate for all purposes necessary for fully carrying out the provisions and requirements of this Act. The Board shall have a corporate seal to be selected by it.

Section 16. All Acts and parts of Acts inconsistent with the provisions of this Act are hereby repealed, provided that the Plant Board as now existing under the Plant Act of 1915 shall continue to exist and function until the Plant Board provided for in this Act shall have been appointed and organized. The Board provided for in this Act shall succeed to and take over all the records, books, office equipment and all other property and things now held, owned or possessed by the Plant Board now existing under the Plant Act of 1915, and all the lawful rules, regulations, orders or other Acts of the Plant Board created under the Plant Act of 1915 shall remain in full force and effect until repealed by the Board provided for in this Act. It is further provided that all employees now in the service of the Board shall retain their positions and receive the salaries now provided for them until removed or replaced by the appointments made under the provisions of this Act.

Section 17. This Act shall take effect upon its passage and approval by the Governor or upon its becoming a law without his approval.

Approved May 19, 1937

Sections of Citrus Commission Law

Section 1. That this Act is passed:

(a) In the exercise of the police power of the State to protect the public health and welfare and to stabilize and protect the citrus industry of the State of Florida.

Section 2.

4. The term "Citrus fruit" means and includes only the fruits Citrus Grandis, Osbeck, commonly called grapefruit and/or Citrus Sinensis, Osbeck, commonly called oranges, and/or Citrus Nobilis Deliciosa, commonly called tangerines, grown in the State of Florida.

8. The term "standard packed box" means 1-3/5 bushels of citrus fruit whether in bulk or containers.

Section 3. That there is hereby created and established a State Citrus Commission to be known and designated as "Florida Citrus Commission" to be composed of eleven practical citrus fruit men, resident citizens of the State of Florida, each of whom is and has been actively engaged in growing, or growing and shipping, of citrus fruit in the State of Florida for a period of five years immediately prior to his appointment to said Commission and who has during said period derived the major portion of his income from the growing, or growing and shipping of citrus fruit. At least seven members of said Commission shall be growers not connected with any packing, shipping or marketing agency or association, either as officers or as paid employees. The regular term of office of the members of such commission shall be two years from date of appointment and until their respective successors are appointed and qualified, except as hereinafter provided. The qualifications for members of said Commission as above required shall continue throughout the respective terms of office of all members. The Governor of the State of Florida shall immediately after this Act becomes effective appoint eleven men with the qualifications stated above to be members of said commission, three of whom shall be appointed from the State at large and the remaining eight as follows: One member from each of the Citrus Districts hereinafter defined, created and established, numbered Citrus Districts Numbers One to Six inclusive, and two members from Citrus District Number Seven. Such members shall be appointed and serve for a term of two years and until their respective successors are appointed and qualified; provided however, that the members

-
1. The bulletin of the State Plant Board of Florida, Volume I, Number 1, New Series, Pages 1-7, January 1, 1938, Gainesville, Florida, Compiled Statutes of the Legislature of Florida for 1937.

of the commission first appointed hereunder from Citrus Districts One, Three, five and Seven, respectively, shall be appointed and hold their first term of office for a period of one year only, from and after which time their successors shall be appointed and hold office for a term of two years and until their successors are appointed and qualified. The growers of citrus fruit in each of such Citrus Districts may by petition recommend to the Governor for this consideration a duly qualified person or persons whom they feel is well qualified to serve as, and who is their choice to be a member of said commission. A majority of the members of said Commission shall constitute a quorum for the transaction of all business and the carrying out of duties of said Commission. Before entering upon the discharge of their duties as members of said Commission, each member shall take and subscribe to the oath of office prescribed in Section 2. of Article XVI of the Constitution of the State of Florida. No member of the Commission shall receive any salary or other compensation but each member of the Commission shall receive the sum of Ten Dollars per day for each day spent in actual attendance in meetings of the Commission to cover his personal expenses while in attendance, together with mileage at the rate allowed by law of State employees for each mile actually traveled to and from all regular and special meetings of said Commission.

Section 5. That the Florida Citrus Commission shall be and it is hereby declared and created a corporate body. The said Commission shall have power to contract and be contracted with, to have and possess all the powers of a body corporate for all purposes necessary for duly carrying out the provisions and requirements of this Act. The said Commission shall adopt a corporate seal by which it shall authenticate its proceedings. Copies of the proceedings, records and acts of the Commission and certificates purporting to relate the facts concerning such proceedings, records and acts, signed by the Chairman of the Commission and authenticated by said seal, shall be prima facie evidence thereof in all the Courts of this State.

Section 10. That said Commission shall have full and plenary power to establish standards for State grades of citrus fruit and for containers therefor and may prescribe rules, regulations and/or orders governing the marks or tags which may be required upon citrus fruit and/or upon containers thereof for the purpose of showing the name and address of the person marketing such citrus fruit, the grade, quality, type, variety or size of the citrus fruit and/or the quality, type, size, weight, content, dimensions or shape of the container; provided, however, that no standard, regulation, rule or order under this Section which is repugnant to any requirement made mandatory under Federal law shall apply to citrus fruit and/or containers therefor which is being shipped from this State in interstate commerce. All citrus fruit sold or offered for sale or offered for shipment within or without the State of Florida shall be graded and marked as required by this Act and the regulations, rules and orders adopted and made under authority of this Act, which regulations, rules and orders shall, when not inconsistent with State or Federal law, have the force and effect of law.

Section 11. That the inspection in the State of Florida of all citrus

fruit and the certifying as to grades and qualifications thereof and the enforcement of all provisions of this Act, and/or of rules, regulations and/or orders made pursuant and under authority of this Act, shall be under the direction, supervision and control of the Commissioner.

Section 13. That said Commissioner is hereby authorized and empowered:

1. To enter and inspect personally, or through his authorized inspector, employee or agent, any place within the State of Florida where citrus fruit is being prepared, packed, loaded or stored for shipment; to stop and inspect personally, or through this authorized inspector, employee or agent, any shipment of citrus fruit.

2. Personally, or through his authorized inspector, employee or agent, to forbid and prohibit the shipment or sale of any citrus fruit found to be in violation of any of the provisions of this Act, or any rule, regulation or order made or adopted under authority of this Act.

3. In furtherance of the right and privilege of any shipper to have citrus fruit graded according to the standards as now fixed by the United States Department of Agriculture, or as such standards may be hereafter changed, to cooperate with the United States Department of Agriculture in accordance with the existing agreement or agreements between the United States Department of Agriculture and the Florida State Marketing Bureau in connection with Shipping Point Inspection Service, and to make any additional agreements with the United States Department of Agriculture or any of its branches, divisions or extensions.

4. To cause prosecution to be instituted for violation of any of the provisions of this Act and/or for violation of any rule, regulation or order promulgated by the Commission.

5. To institute such action at law or inequity as may appear necessary to enforce compliance with any provisions of this Act or to enforce compliance with any rule, regulation or order of the Commission made pursuant to the provisions of this Act, and in addition to any other remedy, to apply to any Circuit Court of this State for relief by injunction if necessary to protect the public interest, without being compelled to allege or prove that an adequate remedy at law does not exist.

6. To employ and fix the compensation of such attorneys as he deems necessary to aid and assist him in exercising the powers and discharging the duties conferred and imposed upon him by law, and particularly by Sub-Section 4 and 5 of this Section of this Act.

Chapter No. 16863

Section 1. The Florida Citrus Commission is hereby given full and plenary power and authority, and it is hereby made its duty, to do the following things:

(a) To promulgate and enforce such rules and regulations concerning

the commission to be paid on all sales of citrus fruit, auction or otherwise as to it shall seem fair and reasonable.

(b) To promulgate and enforce such rules and regulations concerning the charges to be made for the packing, pre-cooling and coloring of citrus fruit as to it shall seem fair and reasonable.

(c) To promulgate and enforce such rules and regulations concerning the packing of citrus fruits, including the bulk, wrapping and form, manner and means of packing, as to it shall seem fair and reasonable.

(d) To promulgate and enforce rules and regulations establishing such prices to be paid for the working, polishing and grading of citrus fruit for truck or bulk shipment, as to it shall seem fair and reasonable;

Provided, however, that no rule or regulation under this section which is repugnant to any requirement made mandatory under Federal Law shall apply to Citrus fruit and/or containers therefor which is being shipped from this State in Interstate Commerce.¹

ACREAGE AND MOVEMENT OF CITRUS NURSERY STOCK

There were, in 1938, three hundredthirty-four nurseries in Florida that raise citrus stock only and one hundred twenty-five general nurseries which raise citrus stock as well as other types.² Approximate acreage and amount of nursery stock of different varieties is shown in the following table:

Table 26-A

Approximate Acreage and plants, June 30, 1938

Kind	Acres	Number of plants
Oranges	997.66	2,919,417
Grapefruit	215.26	590,334
Tangerines	17.29	35,462
Satsumas	15.67	82,033
Others	169.72	604,044
Seedlings	598.09	10,735,637

1. State of Florida Citrus Inspection Bureau, Annual Report, Season of 1937, pages 5-18, State Department of Agriculture, Tallahassee, Florida. Also found in Compiled Statutes of Florida for 1937.
2. Figures taken from reports and records on file at the State Citrus Inspection Bureau, Gainesville, Florida, September 20, 1938.
3. Ibid.

Trends for the past three years in the planting of nursery stock are shown in Table 26-B.

Table 26-B

Approximate Acreage and Amount of Nursery Stock for the Years
1935-38 (3)

Kind	Acres			Plants		
	1935-36	1936-37	1937-38	1935-36	1936-37	1937-38
Oranges	621.66	730.57	997.66	1,621,831	2,164,550	2,919,417
Grapefruit	231.12	216.70	205.26	652,932	527,095	590,334
Tangerines	36.72	31.40	17.29	72,306	46,000	35,462
Satsumas	44.28	28.23	15.67	66,895	64,872	82,033
Other budded varieties	111.44	164.16	169.72	306,526	502,533	604,044
Seedlings	391.22	560.06	598.09	5,344,053	5,322,272	10,735,637

3. Ibid.

Invoices on file at the State Citrus Inspection Bureau show that movements within the state of citrus stock amounted to 3,009,820 plants and a total of 12,783 plants were shipped out of the state. No nursery stock may be shipped into the state without a special permit from the state inspection bureau.

Table 26-C

Citrus stock movement as compared with two previous years (4)

Variety	1935-36	1936-37	1937-38
Orange	548,108	808,570	831,689
Grapefruit	144,120	110,918	154,253
Tangerine	6,357	5,128	4,461
Satsuma	5,252	10,506	5,050
Lemon	30,635	29,005	23,544
Lime	60,754	117,507	90,531
Seedlings	817,652	1,549,928	1,898,967
Miscellaneous	13,708	18,187	14,108

4. Ibid.

The problem that now faces the citrus nurseries is finding a market for the plants from the added acreage. The acreage in groves in the state is not being increased at a sufficient rate to furnish a market for the stock. California will not allow stock to be shipped into the state and recently Texas placed an embargo on shipments from out-of-state nurseries. With these two great potential markets shut off, several of the nurseries are looking to South America as a new market and one at least has a representative there attempting to build a market.

NATURE OF WORK AND COMPENSATION IN CITRUS INDUSTRIES

Samples of nature of work and pay have been obtained from four firms:

- I. Firm A is a large nursery in the southern part of the state which handles citrus, avocado, and mango plants and also operates groves.
- II. Firm B operates a nursery only to get trees to plant in its own citrus groves.
- III. Firm C is a large company that operates a nursery for raising trees to sell and also to plant in its own groves.
- IV. Firm D is a large commercial citrus nursery which owns own groves.

The following data were obtained from these nurseries:

- I. Seasonal character of work.
 Firm A "Partly. A large part of the budding, grafting, lining out and moving of plants is done in the spring. Cultivations, spraying fertilizing and watering are continuous."
 Firm B "Yes. Spring and Summer".
 Firm C "No. There is work of various kinds all year".
 Firm D "No. During the period from April to November, our men are engaged in propagating young trees and preparing land for future plantings. From December to April, they are engaged in digging and packing plants which we sell."
- II. Jobs specialized requiring special training.
 Firm A. "Propagating".
 Firm B. "Budding, planting and spraying".
 Firm C. "Budding, grafting, and training the buds."
 Firm D. "Budding trees."
- III. Jobs requiring training in an agricultural college.

Firms A, B, & D. "None."

Firm C. "The field manager needs training, either in an agricultural college or by experience."

IV. Use of the same person for several jobs.

Firm A. "Yes. Mowing, fertilizing, spraying, pruning, watering, picking. We do no packing."

Firm B. "Yes. All."

Firm C. "Yes. The crew of men handle all the work as it comes along."

Firm D. "Yes. Plowing, discing, cultivating, spraying, lining out seedlings, budding, staking, sprouting, digging trees, loading and packing."

<u>Name of job</u>	<u>Duties performed</u>	<u>Wages</u>
Firm A.		
1. Propagator	Budding and grafting	\$24.00 per week
2. Helper and mechanic	Tending buds and operating machinery	15.00 per week / houses
3. Laborers (col)	Hoeing, fertilizing, digging, lining out, pruning, spraying	12.00 per week / houses
Firm B.		
1. Budding	Budding, wrapping, sprouting	Contract last year amounted to: \$1,070.00
2. Hoeing	Flat hoeing around trees	Total cost (wages) \$56.00
3. Fertilizing	Applying fertilizer	" " " \$12.00
4. Removing trees	- same	" " " \$78.00
5. Planting	- same	" " " \$97.00
6. Irrigating seedlings	- same	" wages for year \$30.00
7. Spraying nursery	- same	" " " " 9.00
Firm C.		
1. Field manager	Plans and directs the actual labor involved in planting and raising nursery stock and caring for groves	\$140.00 per month
2. Bookkeeper	Bookkeeping and general office work	15.00 per week
3. Laborers	Any work necessary in nurseries and groves	10.00 to \$15.00 per week depending on length of service and capabilities.

These samples show that the workers have many duties and there are few standard jobs, although the duties seem to be about the same in all nurseries. The methods of management and organization also vary. There is no common method of paying wages in the industry. Some nurseries pay by the week, some by the month, others by contract, and others use a combination of the three. The better paying jobs require skill and experience. This is especially true of those at which workers do budding and other processes of propagating the stock. The greatest problem that the nurseries as a whole face is that of finding an outlet for their products. The competition and over-production have created a chaotic condition in the industry that has not only kept down profits from owners but wages for the workers. The near future does not promise much improvement of conditions among citrus nurseries.

Table 27

ORANGE PRODUCTION BY STATES, AND AVERAGE PRICE RECEIVED BY PRODUCERS,
1919 TO DATE (3)

Season	Calif- ornia	Florida	Texas	Arizona	Alabama	Louisiana	Mississippi	Total	Farm Price (1)
	1,000 boxes	1,000 boxes	1,000 boxes	1,000 boxes	1,000 boxes	1,000 boxes	1,000 boxes	1,000 boxes	Cents Per box
1919-20	17,073	7,533	9	80	20	37	31	24,783	267
1920-21	22,547	9,457	5	60	82	42	25	32,218	225
1921-22	13,921	8,371	5	80	82	50	30	22,539	307
1922-23	21,286	10,897	10	81	190	60	45	32,569	226
1923-24	24,324	13,725	6	86	225	75	55	38,496	192
1924-25	18,535	11,639	17	60	2	75	--	30,328	341
1925-26	24,200	10,044	10	86	130	100	27	34,597	290
1926-27	28,167	11,512	41	75	75	150	42	40,062	286
1927-28	22,737	9,487	70	54	110	300	50	32,708	388
1928-29	38,994	15,586	115	99	85	220	30	55,131	200
1929-30	21,463	10,304	261	137	212	187	37	32,621	356
1930-31	35,470	19,211	250	139	3	287	2	55,362	164
1931-32	34,900	14,200	520	145	80	245	54	50,164	133
1932-33	34,265	16,200	325	147	120	278	80	51,415	109
1933-34	28,439	18,100	430	155	3	245	2	47,374	159
1934-35	45,047	17,800	650	170	140	293	88	63,988	136
1935-36	33,049	18,000	777	240	2	244	1	52,513	160
1936-37	27,664	22,000	2,000	140	56	333	26	52,219	133
*1937-38	42,252	21,500	1,900	323	76	238	67	66,356	---

(1) Prices 1919-20 to 1923-24 average of California and Florida price; 1924 to date average for seven States shown.

* Estimate of March 11, 1938, E. A. Marks, Florida State Agricultural Statistician Production data published in mimeographed reports of the Bureau of Agricultural Economics; price data published in Agricultural Statistics 1936, page 131, table 180 and Crops and Markets.

3. Agricultural Outlook Charts, Fruits and Nuts, 1938, U. S. Department of Agriculture, Bureau of Agricultural Economics, Washington, D. C., p. 13, October 1937.

Table 28

**GRAPEFRUIT PRODUCTION BY STATES, AND AVERAGE PRICE RECEIVED BY
PRODUCERS, 1919 TO DATE (4)**

Season	Florida	California	Texas	Arizona	Total	Farm Price (1)
	1,000	1,000	1,000	1,000	1,000	Dollars
	<u>boxes</u>	<u>boxes</u>	<u>boxes</u>	<u>boxes</u>	<u>boxes</u>	<u>Per box</u>
1919-20	5,898	363	3	29	6,293	2.06
1920-21	6,142	395	5	34	6,576	2.17
1921-22	6,644	360	8	35	7,047	2.11
1922-23	7,766	394	35	60	8,255	1.64
1923-24	8,936	363	65	95	9,459	1.27
1924-25	9,177	387	301	105	9,970	1.61
1925-26	7,660	600	200	150	8,610	2.57
1926-27	8,693	672	361	120	9,846	1.86
1927-28	8,158	720	524	176	9,578	2.78
1928-29	11,314	972	753	211	13,250	1.67
1929-30	8,274	1,000	1,550	365	11,169	2.41
1930-31	16,109	1,290	1,135	400	18,934	1.20
1931-32	10,786	1,431	2,480	450	15,147	1.03
1932-33	11,600	1,350	1,375	614	15,149	.84
1933-34	10,700	1,713	1,140	800	14,353	1.12
1934-35	15,200	2,167	2,760	1,240	21,367	.83
1935-36	11,500	2,267	2,762	1,000	18,329	1.05
1936-37	18,000	1,320	9,231	1,200	29,751	.80
*1937-38	13,000	1,890	10,200	2,500	27,590	----

1. Prices 1919-20 to 1923-24 refer to Florida alone; 1924 to date average for all States shown.

* Estimate March 11, 1938, H. A. Marks, Florida State Agricultural Statistician. Production data published in mimeographed reports of the Bureau of Agricultural Economics. Price data published in Agricultural Statistics 1936, page 131, table 180.

4. Agricultural Outlook Charts, Fruits and Nuts, 1936, U. S. Department of Agriculture, Bureau of Agricultural Economics, Washington, D. C., p. 19 October 1937.

Countries Producing Citrus Fruit in Large Quantities Oranges

The principal producing countries are the United States, Spain, China, Japan, Italy and Palestine. The United States is the largest producer of oranges in the world. Spain is the most important exporter of oranges.

Table 29

Country	Average					
	1930-31	1931-32	1932-33	1933-34	1934-35	1935-36
	1,000 boxes	1,000 boxes	1,000 boxes	1,000 boxes	1,000 boxes	1,000 boxes
United States	43,166	50,164	51,368	47,239	64,241	55,650
Spain	37,368	37,900	36,109	34,400	35,000	27,000
Italy	8,760	10,110	15,778	10,110	11,180	7,500
China	15,000	15,000	15,000	15,000	15,000	15,000
Japan	11,200	11,200	12,400	13,300	13,000	13,000
Palestine	2,860	4,000	5,000	6,000	7,500	8,500
Brazil	9,800	11,600	11,000	11,500	12,000	15,000
Union of South Africa	1,862	2,500	2,600	2,800	3,000	3,200
Mexico	3,264	3,950	3,558	2,885	3,000	3,000
Australia	2,243	2,712	2,603	2,713	2,800	3,000
Algeria	1,880	1,809	2,400	2,247	2,300	2,500
Uruguay	2,700	3,000	3,000	3,000	3,000	3,000
Greece	641	863	968	1,180	1,200	1,200
South Rhodesia	204	180	130	170	165	170
Mozambique	140	150	175	145	150	150
Phillipines	254	350	368	350	350	350
Tunis	60	110	79	100	100	100
Italian Aegean Isles	25	25	31	30	330	30
France	24	33	41	43	40	40
Egypt	180	400	500	750	800	900
Cyprus	200	200	225	250	275	300
Puerto Rico	1,000	1,000	1,000	1,000	1,000	1,000
Cuba	2,000	2,000	2,000	2,000	2,000	2,000
Jamaica	500	500	500	495	300	400
Argentina	500	600	600	650	700	700
Dominia, British West Indies	10	10	10	10	12	10
Paraguay	3,000	3,000	3,000	3,000	3,000	3,000
Syria	1,000	1,000	1,000	1,000	1,000	1,000
Others	15,161	14,912	13,557	12,581	11,859	12,098
Approximate world production	165,000	180,000	185,000	175,000	195,000	180,000

(5)

Carlot Shipments of Oranges from Florida by Months
1920-21 to 1936-37

Table 30

Season	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.	Total
1920-21	3	487	3595	4001	3870	3352	2832	1981	620	21	--	--	20859
1921-22	3	491	2097	4131	2901	2750	1804	1086	413	41	1	--	15718
1922-23	78	1254	2723	4890	4139	3854	2713	1798	1231	309	13	5	23006
1923-24	23	1091	6173	5175	4217	4653	5428	4222	1973	467	8	1	23431
1924-25	--	245	4269	5749	5265	4220	2664	1682	867	129	1	--	25091
1925-26	--	447	2969	4061	3153	3005	2778	2545	592	75	--	--	19625
1926-27	--	525	3073	5225	3790	3954	2759	2212	821	162	13	2	22536
1927-28	6	834	2953	4174	3145	1987	1667	1049	410	27	1	--	16453
1928-29	5	890	3735	5025	5390	4826	4466	4452	2977	762	16	6	32550
1929-30	5	266	2117	3564	3645	3480	2594	789	6	3	--	6	16475
1930-31	8	1789	3464	4118	4377	4732	4515	3463	3392	934	19	--	30811
1931-32	--	311	2107	3551	3253	3421	2926	2467	1685	267	1	--	19994
1932-33	--	40	1454	4185	3943	3562	3080	3477	3657	2428	337	--	26963
1933-34	2	221	2358	4115	4375	4025	5256	3053	3477	257	--	9	27348
1934-35	1	1203	3914	3923	2194	3338	3391	2702	2095	1010	140	--	24911
1935-36	--	486	2574	3764	3649	4200	4504	3019	2467	514	1	6	26066
1936-37	2	1855	3834	4121	4922	3705	4316	4400	3053	1540	1	--	32644
Average	12	732	3148	4339	3904	3714	3457	2706	1732	527	42	5	(6)

November, December, January, February and March appear to be the months when most fruit has been shipped in the past but April, May and June seem to be coming to the front since about 1923. December ships the most with January second, and February third.

-
6. Rhodes, H. From Field to Market with Florida Vegetables and Citrus Fruits. Bulletin New Series, No. 83, P. 34, April, 1936
-

Statement of Bureau of Sanitation, Florida State Board of Health with
Reference to Packing and Canning.

1. With reference to the sanitation and cleanliness of packing houses and canning plants we are attaching a copy of our cannery regulation which should give you the information desired as to canneries. With reference to the packing houses our district sanitary officers are instructed to make frequent inspections of the citrus packing houses to see that the sanitary facilities of the packing houses are kept in good shape and clean at all times.

2. With reference to home conditions of workers. Our sanitary officers assisted by county and city sanitary officers constantly attempt to educate our workers as to home sanitation. This includes the improvement of water supplies, if water under pressure is not available. Screening of the home and proper sanitary toilets. This program has been greatly helped by the aid of the WPA and Federal Government, where materials must be purchased by the occupants but the labor is furnished free by the WPA for the construction of sanitary privies.

3. Health examinations and regulations for citrus workers. At the present time we do not have any health examinations for citrus workers but have under advisement a plan whereby cannery employees should take a physical examination before being allowed to work in our canneries. This matter is to be brought up before the State Board at its next regular meeting.

4. Specific lines for improvement. In making inspections of canneries or citrus packing houses, the inspector directs that the owner correct certain conditions as found and a specified time is given him to make the necessary corrections. Usually 15 days, if the condition is of major importance. If it is just to clean up he is given 24 to 48 hours. As you probably note our canneries are required to secure permit from this office. Therefore, all permits are revokable if conditions found are not entirely in accord with our regulations.

5. Distinctions, if any, in health among negro workers and why. With reference to distinctions, we do not make any distinctions between colors. We feel that anyone becoming sick is a potential danger to our citizens, therefore the color line is left out. We do, however, find that our negroes are more hearty, with reference to disease, than our white population.

Trusting this answers your inquiry, and if we can be of further assistance, please do not hesitate to call upon us.

Very truly yours,

Fred A. Safay
Director

Florida State Board of Health
Rule No. 29

Rule Relating to the Sanitation and operation of all Commercial Canneries, Juice Extracting Plants, Preserving Plants and Establishments, Packing Cooked or Processed Food, designed for Human Consumption:

- Section 1. A Commercial Cannery is defined as a place, building or establishment where fruits, fruit juices, vegetables, shellfish, fish or meats are packed in hermetically sealed containers, processed by heat treatment and subsequently placed on the market for general consumption as a human food. Juice extracting plants are establishments extracting fruit or vegetable juices and canning or bottling same. Preserving plants are establishments where jellies, preserves, jams and similar products are packed or canned.
- Section 2. No commercial cannery, juice extracting or preserving plants shall operate without a permit from the State Board of Health and no permit shall be issued by the State Board of Health until a thorough sanitary inspection shall be made of the plant, its immediate surroundings and method of waste disposal and compliance with the following sanitary features met.
- Section 3. Any building utilized shall be suitably ventilated and lighted by natural or artificial means.
- Section 4. All walls shall be constructed so that they can be easily cleaned and kept in a sanitary manner. Ceiling shall be of such material as to prevent dust, dirt or material stored above from sifting through to the floor below.
- Section 5. All floors shall be constructed so as to permit proper washing or cleaning and sufficient drains, gutters or sewers shall be provided to insure proper, prompt removal of waste liquids and water. All floors shall be of properly constructed water tight concrete or vitrified tile.
- Section 6. Suitable containers, flumes, chutes or conveyors shall be provided for removal of wastes from the peeling, butchering, cutting packing or cooking rooms.
- Section 7. All openings into the peeling, butchering, cutting, packing or cooking rooms shall be screened with 16 mesh wire, and insect and rodent control devices shall be installed.
- Section 8. A room or rooms shall be kept for unloading fruits, vegetables, meats, fish, shellfish, or supplies, entirely separate from the main canning or packing room.
- Section 9. An adequate approved supply of running water and steam where necessary shall be provided throughout the plant for drinking.

culinary and cleaning purposes.

Section 10. Separate toilet rooms for each sex and color shall be provided upon the premises of all canneries, etc., and such rooms shall be completely separated from the work rooms by tight partitions. They shall be properly lighted and ventilated by the outside air. All toilet rooms must have natural as well as artificial illumination. Toilet floors shall be of concrete, tile or other similar impervious material, properly graded to a drainage system so they can be easily cleaned. The walls of the toilet rooms for a distance of two feet from the floor shall be of the same material as the floor. Plumbing fixtures shall be of modern type subject to the approval of the State Board of Health or local plumbing authorities and installed according to their requirements. The number of fixtures shall be at least:

One stool for every 25 employees.

One vertical type urinal for every 40 male employees.

One hand lavatory for every 25 employees.

All establishments employing over 250 people shall provide an attendant for the toilets whose duty shall be to keep the toilet rooms in a sanitary condition at all times.

Section 11. An adequate number of sanitary wash basins, with soap and paper towels shall be provided in each toilet room.

Section 12. Signs shall be conspicuously posted in the various rooms about the cannery requiring all employees handling foodstuffs to thoroughly wash their hands after each absence from post or duty.

Section 13. All establishments employing over 250 people shall provide a restroom, adequately equipped for emergency use.

Section 14. Emergency medical kits shall be provided and kept ready for use.

Section 15. One sanitary drinking fountain of the slant jet, protected nozzle type shall be provided for every 50 employees and these fountains shall be so located as to be easily accessible. No drinking fountains shall be located in the toilet rooms.

Section 16. All employees who assist in preparing or handling fruit, vegetables, etc., intended for canning, shall wear clean garment of washable fabrics and all female employees so engaged wear clean washable caps, covering the hair.

Section 17. Offal or wastes from any source shall not be allowed on the floor at any time but shall be placed in containers, funnels, chutes, or conveyors for removal.

- Section 18. All floors and other parts of the cannery and all cannery fixtures, equipment and utensils shall be cleaned as often as may be necessary to maintain them in sanitary condition.
- Section 19. All garbage and waste material shall be removed daily and disposed of in a manner approved by the State Board of Health.
- Section 20. All employees shall be required to observe proper habits of cleanliness and the packers shall not knowingly employ in or about the cannery any person afflicted with infection or contagious diseases.
- Section 21. All canning establishments, as defined in section one, shall submit plans to the State Board of Health for Approval before construction work is started and shall secure from the State Board of Health a tentative approval of the site to be used before construction work commences.

LIST OF LICENSED DEALERS IN CITRUS FRUITS 1936-37

<u>Name of Firm</u>	<u>Location</u>	<u>Note</u>
American Fruit Growers, Inc.	Orlando	
Apte Brothers	Tampa	Cannor
Askew-Davis Company, Inc.	Auburndale	
Atlantic Commission Co. Inc.	Plant City	
Booth, L. B. & Company	Large	
Bordo Products Company	Winter Haven	Cannor
Bruces' Juices, Inc.	Tampa	Cannor
Burch, R. W., Inc.	Plant City	
Burke, F. E. Company	Ocoee	
California Packing Corp. Fla. Div.	Tampa	
Central Florida Cannors	Wauchoula	
Citrus Concentrates, Inc.	Dunedin	
Citrus Grove Development Co.	Babson Park	
Creel-May	Winter Haven	
Dillard, Albert N.	Clearwater	
Duz-Pac Corporation	Orlando	
Eckerson Fruit Cannors, Inc.	Sanford	Cannor
Evans Products Company	Winter Haven	
F. & M. Packing Company	Brooksville	Cannor
Florida Citrus Cannors Cooperative	Lake Wales	Cannor
Florida Citrus Exchange	Tampa	
Florida Fruit Cannors, Inc.	Frostproof	Cannor
Floridagold Citrus Corporation	Lake Alfred	Cannor
Florida Fruit Company	Fort Meade	
Florida Grapefruit Canning Co. Inc.	Manatee	Cannor
Floriorange Cannories, Inc.	Fort Dora	Cannor
Fowler, H. W.	Arcadia	
Frenchy's Fruit Store	Miami	
Garner's Indian River Fruit Co.	West Palm Beach	
General Fruit Products of Fla. Inc.,	Bradenton	Cannor
Givons, M. H.	Eustis	
Grapefruit Products Company	Leesburgh	Cannor
Griffin, E. F.	Bartow	
Hills Bros. Company of Florida	Tampa	Cannor
Holloway Canning Company, Inc.	Fort Pierce	Cannor
Huntley & Roberts	Winter Haven	
Indian River Groves	Fort Pierce	
Loce Sales Company	Leesburgh	
Lake Garfield Nurseries Company	Bartow	
Lakeland Highland and Canning Co.	Highland City	Cannor
Lee & Edwards	Tampa	
Lee, L. C., Jr.	Brooksville	
Lewis & Flora	Tampa	
McCawley, Joe B.	Kissimmee	
Manatee Cannery, Inc.	Plant City	Cannor
Mendonhall, A.	Tampa	
Meyer, Art	Lakeland	

<u>Name of Firm</u>	<u>Location</u>	<u>Note</u>
Moses, G. M.	Marcoossee	
National Fruit and Vegetable Exchange	Orlando	
Noling and Church, Inc.	Howey-in-the-Hills	
Palmetto Canning Company	Palmetto	Canner
Peace River Packing Co. Inc.	Fort Meade	
O. H. Perrin Fruit Company	Arlington, Mass.	
Pickard, A. F.	Lakeland	Agent
Pierce, Edward G.	Bartow	
Polk Company, The	Haines City	Canner
Porter Brothers	Orlando	
Poultryman's Market	Orlando	
Roberts Bros. Inc.	Winter Haven	Canner
Robinson, E. D. d/b/a/ The Fruit Basket	Orlando	
Rogers, R. W.	Orlando	
Rose Caretakers Association, Inc.	Orlando	
Sanborn, W. H.	Orlando	
Shallow, Samuel J. Co.	Winter Haven	
Shaver, H. A. Inc.	Lakeland	Canner
Staples, S. E.	Tampa	
Steinberg, Morris	Orlando	
Stevenson, Fred	Palmetto	Agent
Stokely Bros. & Company, Inc.	Tampa	Canner
Stosberg, R. C.	Clermont	
Sulphur Springs Packing House	Sulphur Springs	
Sun Dine Company, Inc.	Florence Villa	Canner
Thomas, Elmo	Manatee	
Tree Ripened Orange Juice Corporation	Fort Pierce	
Vaughn, Frank	Winter Haven	
Vissoring, Norman H.	Lake Wales	
Welch, J. W. Company, Inc.	Eustis	Canner
Wesco Foods Company	Lakeland	
Wheeler Fertilizer Company	Oviedo	
Whitefield Citrus Products Corp., Fla.	Bradenton	Canner
Witz, S. A. (7)	Cocoa	

Florida Canning and Preserving Plants

<u>City</u>	<u>Plant</u>	<u>Products Canned</u>
Arcadia	Gates Packing Co. DeSoto Canning Co.	Citrus Products Grapefruit-Grapefruit Juice
Auburndale	Trueman & Company	Citrus Products
Bartow	Seoville Canning Co. (Hills Bros.)	Grapefruit-Grapefruit Juice
Bradenton	Florida Grapefruit Canning Co. Whitefield Citrus Products Corp.	Citrus Products Grapefruit juices- Honey
Brooksville	Florida Gulf Canning Co. General Fruit Products of Fla. Inc. F. & M. Packing Co.	Citrus Products Grapefruit-Grapefruit Juice
Chaires	Gipsy Canning Co.	
Clearwater	Hills Brothers Co. West Coast Fruit Co.	Citrus Products Citrus Products
Center Hill	Southland Packers, Inc.	
Cocoa	Rockledge-Layman Jelly Co.	Miscellaneous fruits
Dania	Apte Brothers	Citrus-Vegetables
Davenport	Holly Hill Fruit Products Inc.	Citrus Products
Dundee	Floridagold Citrus Corp.	Citrus Products
Dunedin	Citrus Concentrates, Inc.	Citrus Juices
Eagle Lake	Floridagold Citrus Corporation	Citrus Products
Eustis	J. W. Welsh Co.	Grapefruit
Fort Myers	Florida Everglades Co.	Citrus-Vegetables
Fort Pierce	Florida Grapefruit Canning Co. Holloway Canning Co. Tree Ripe Orange Juice Corp.	Citrus Products Citrus Products Orange Juice
Ft. Lauderdale	Ivans Pettitt Canning Co.	Fruits-Vegetables
Fort Myers	Gates Packing Co. Polk Co. Senformer Co.	Citrus Products Grapefruit Preserves
Florence Villa	Sun Dine Co.	Orange Juice
Fort Meade	Pence River Corp. Cannery	Grapefruit, etc.
Frostproof	Florida Fruit Cannery, Inc. H. C. Sullivan Cannery	Citrus Products Citrus Products
Fruitland Park	L. H. Stever	Preserves
Haines City	Polk Co.	Citrus Products
Highland City	Lakeland-Highland Canning Co.	Citrus Products
Howey-in-Hills	Sun Pure Products Company	Citrus Juices
Jacksonville	Brooks Packing Co. Florida Packing Co. Florida Sunshine Products Co. S. J. Coffin Co.	Grapefruit Grapefruit Grapefruit Grapefruit Juices or Juices
	Vita Foods, Inc.	Preserves
	Tru Fruit Distributors	Citrus Products

<u>City</u>	<u>Plant</u>	<u>Products Canned</u>
Lake Wales	Hills Bros. Co. of Florida	Grapefruit
	Florida Citrus Cannery Co-op	Grapefruit
Lakeland	H. A. Shiver, Inc.	Grapefruit
Lake Alfred	Floridagold Citrus Corp.	Citrus Products
	Sun Dine Co.	Citrus Products
Largo	Indian Rocks Fruits, Inc.	Jellies-Preserves
Leesburg	Grapefruit Products Co.	Grapefruit
	L. E. Holloway & Co.	Citrus Products
Loughman	Holly Hill CO-OP Citrus Ass'n	Citrus Products
Mt. Dora	Floriorange Canneries Co.	Citrus Products
Miami	Bonita Fruit Preserving Co.	Tropical Fruit Product
	Howard Preserving Co.	Preserves
	Sunland Foods, Inc.	Jollies
	Miami, Industries, Inc.	
	Tropical Fruits, Inc.	Preserves
Ocala	Florida Fruits	Citrus Products
	Tru-Fruitee Products Co.	Citrus Products
	Surprise Canneries, Inc.	
Orlando	The Perfect Orange Juice Co.	Orange & Grapefruit Juices
	Dr. P. Phillips Co.	Citrus Products
	Orlando/Canning Co.	Citrus Products
	Wakofield Preserving Co.	Preserves
	Baker Products Co.	Preserves, wines
	Liquid Orange Products (inactive)	
Ormond	Number Nine Plantation	Miscellaneous fruits
Oakland Park	Ivans Pettitt Canning Co.	Fruits-Vegetables
Ochoppee	Fonewick Packing Co.	
Plant City	Manatee Cannery Co.	Citrus Products
Palma Sola	Lone Palm Preserving Co.	Preserves
Quincy	Quincy Packing Corp.	Citrus Products
Ruskin	Artesian Farms, Inc.	Citrus Products
Sanford	Ekerson Fruit Cannery, Inc.	Miscellaneous Fruits
Sarasota	Tree Ripe Citrus Products Co.	Jollies
Sebring	Grogg Maxey, Inc.	Orange-Grapefruit Juices
St. Petersburg	Indian River Fruits, Inc.	Preserves
	Sun Ripe Products Co.	Preserves
	Tropical Preserving Co.	Preserves
Tampa	Apte Brothers	Citrus Products
	California Packing Co. (Fla. Div.)	Citrus Juices
	Bruce's Juices, Inc.	Citrus Juices
	Florida Citrus Juice Co.	Citrus Juices
	Southern Fruit Juice Co.	Citrus Juices
	Stokely Bros. & Co., Inc.	Citrus, -Vegetables
	True Fruit Distributors	Citrus Products
	Tampa Stock Farms (dairy)	Citrus Products
Tarpon Springs	Tugwell & Wiseman, Inc.	Citrus Products

<u>City</u>	<u>Plant</u>	<u>Products Canned</u>
Wauchula	Central Florida Cannery, Inc.	Citrus Products
Winter Garden	Southern Fruit Canning Co.	Citrus Products
Winter Haven	Bordo Products Co.	Grapefruit Juices, etc.
	Roberts Brothers	Grapefruit Juices, etc.
	Folk Packing Ass'n	Citrus Products
Weirsdale	Snook Home Products Co.	Preserves (8)

QUALIFICATIONS AND OPPORTUNITIES IN CITRUS INDUSTRY

EXCERPTS FROM STATEMENTS OF PERSONS INTHE INDUSTRY

1. From Dan McCarty, official of the Indian River Citrus Association, Fort Pierce, Florida, May 3, 1938.

"In my opinion there is no greater field of opportunity for college students in Florida than the citrus industry. Jobs of varying types now are available in the three major phases of this industry, namely: production, packing, and marketing. The College of Agriculture is equipped to provide the necessary education and background for any man desiring to enter any of these three fields. The opportunity depends entirely upon the individual. He must be interested and diligent in his work. The highly competitive angles in the citrus industry today require initiative and alertness that were not so important a few years back.

"The type of labor is very important in the success or failure of a citrus enterprise since they are handling a perishable product. They must be skilled in the proper methods of handling. I find the labor, both white and colored, in the citrus industry to be above the average. That is, they must be in order that they may intelligently carry out the method of culture recommended by the owner or manager. Their work is hard and long, and for this reason they must be satisfied and interested.

"There are two types of grove owner in my observation: one, the grove owner who operates his grove as an investment, perhaps as his only source of income; and the other, the grove owner who is speculating in the fruit business. In either case, they must be industrious. They must have a general knowledge of the industry in Florida and the factors that affect it from a statewide standpoint. They must be farsighted enough to make adequate preparation for any disasters that might endanger the grove. In general, they must operate as any other business man today. They must have adequate credit and finances to carry them through periods of depression. This is necessary because in such periods many groves are damaged beyond repair through improper attention.

"The caretaker must be interested in his work. He must respect and admire the owner. He must understand that he is his representative and show the same interest as if the grove were his own. Many caretakers adopt the attitude that they are doing all the work and receiving less than their share of the credit. This type of man had better get out of the fruit business, because he is betraying the trust placed in him by the owner. His salary should run from \$150 to \$200 per month, and he should be thoroughly educated in the production of citrus fruit, both from the quality standpoint and from the economical standpoint.

"The packing house manager is in the same position with the packing house

that the caretaker is with the grove. He must know and understand labor. He must operate at all times with his employer's interests at heart and give his time and talent as if the organization were his own. This job should pay from \$200 to \$500 a month, depending entirely upon the volume of fruit handled through the house."

2. From the President of the Waverly Growers Cooperative,

Mr. John D. Clark, Waverly, Florida, April 16, 1938.

"Of course the field of employment is very broad beginning with the groves, in fact even going back of that to the land itself and reaching on through production of the raw product, packing house operation and marketing. - - - Whether a man is to be successful depends largely upon himself and I feel that one of the most important things for a young man to realize is that success usually comes from sacrifice and hard work.

"Our experience would lead us to believe that when a young man has graduated from the University, he feels that he is entitled to a place well up on the ladder. One of the most valuable things to get into the heads of young men is the glory of labor. There is no way to learn this business, or any other I know, except by beginning at the bottom and working your way up. Any man to be capable of qualifying for a position well up, either in the production of fruit, the handling of groves, the operation of a packing house, or in the field of marketing, should know every phase of citrus from the very beginning and the only way to know it is to work with it.

"I cannot help but feel when we consider the great and unexplored field of by-products, that the opportunities for labor and profit are greater right here in Florida, for Florida boys, than can be found outside the State."

TYPICAL PERSONNEL FOR CANNING PLANT

Information supplied by C. E. Lindsey, Highlands Canning Company, Inc., December 2, 1937, states that a canning unit of 250 employees would be distributed as follows:

Peeling - - - - -	43 persons
Sectionizing - - - - -	117 persons
Miscellaneous labor - - - - -	61 persons
Machinist and trucking - - - - -	7 persons
Supervision - - - - -	2 persons

Also a bookkeeper, a stenographer, an inventory clerk, two general office workers, a payroll clerk, and each plant should have a chemist.

EMPLOYEES' INSURANCE

The Waverly Growers Cooperative, in a statement made in a letter from James C. Morton, May 30, 1938, gives the following:

"We have group life insurance for our employees. This we have under master policy with the Equitable Life Assurance Society of the United States. Each employee carries \$1000.00 life insurance, for which he or she pays \$7.20 per annum and the association pays the balance of the premium.

"Similar policies are carried by the Adams Packing Company of Auburndale, the Dr. Phillips Company of Orlando, and I understand there are others but I do not know who they are.

"Group sick benefits and double indemnity for accidents may be had with any of the old-line companies, but I do not know of any groups in the citrus industry that are carrying these. In our own packing house, the workers from time to time take up subscriptions to aid any fellow worker who has been sorely pressed by sickness, and this has worked out very satisfactorily, being supplemented many times by the association, itself."

STATEMENT ABOUT RESEARCH AND BY-PRODUCTS

IN THE CITRUS INDUSTRY

Supplied by Harry W. van Loesocke, senior chemist, U. S. Citrus Products Station, Winter Haven, Florida, April 9, 1938.

"Development of citrus wine production in Florida has not been great. This is probably due to two reasons: (1) In many instances establishment of wineries has seemed to be a stock promotion scheme; (2) Attempts have been made to produce citrus wine without adequate technical knowledge. A citrus wine, brandy and cordial industry could be established if it were placed in competent hands.

"Citrus candy is being manufactured in Florida in plants of various sizes and capacities. This is rather a specialized industry and consumption of a candy of this nature is probably limited.

"Dairy feed from citrus pulp is now being manufactured by six plants. No doubt there is a market for this material if it can be produced economically. The most serious problem in connection with the manufacture of feed from citrus pulp is the innocuous disposal of the press liquor obtained from the pulp prior to drying. The nuisance created by this press liquor is causing public health authorities considerable concern.

"We do not know whether or not breakfast cereal from citrus peel is being produced commercially. When one considers the dozens of breakfast cereals on the market today, it is a little difficult to understand how a new one will find a place without a considerable expenditure of funds for advertising.

"Research in Florida on citrus by products today may be said to consist of attempts to improve present canning methods, new uses for citrus peel oils, pectin, naringin and hesperidin; new products obtainable from cannery waste, disposition of cannery and feed plant effluent so that it will not be a public health nuisance. With regard to the possibilities and outlook for new products, perhaps it would be better not to make predictions."

STATISTICS CONCERNING 1936-1937 SEASON

CITRUS CANNING INDUSTRY

Supplied by Florida Citrus Commission April 9, 1938

(T. L. Hadson, Lakeland)

Total Boxes fresh fruit used (oranges & grapefruit)			7,315,000
Number of plants operating 1936-1937 season			44
	<u>Segments</u>	<u>Juice</u>	<u>Total</u>
Total cases canned 1936-37 season	4,051,148	4,513,728	8,564,876
Estimated Value per case	\$2.00	\$1.50	
Estimated value of season's pack	\$8,102,296.00	\$7,221,964.80	\$15,324,260./

80

Estimated labor cost per case	.45	.20	
Estimated labor cost season's pack	1,823,016.60	902,745.60	2,725,762.20

Estimated number employed by cannors is from 7,500 to 10,000 people from 4 to 7 months, which does not include truckers hauling fruit and others indirectly associated with the actual canning plant operations.

The estimated value of citrus canning plants in Florida \$3,300,000.00

BIBLIOGRAPHY
CITRUS

Compiled by Allison Kistler and Sidney M. Ross

- Armstrong, P. S. - Present Marketing Situation. California Citrograph, Vol. 22 pp. 266-7. April, 1937.
- Armstrong, P. S. - Widespread Returns From Citrus for Labor and Materials to other Industries. California Citrograph Vol. 22 pp. 144. February 1937.
- Bell, M. - Improving Packing Performance. Power Plant Engineering, Vol 40, pp. 726. December, 1936.
- Bowman, Victor Virgil - The Relative Importance of the Grade-lowering Factors of Citrus. University of Florida, Gainesville, Fla., 1935.
- Brooker, Marvin Adel - A Study of the Cost of Transportation of Florida Citrus Fruits with Comparative Costs from other Producing Areas.
- Brooker, Marvin A. & Hamilton, H. G. - Farmers' Cooperative Associations in Florida. Supplement to Bulletin 245. November, 1937. University of Fla. Agricultural Experiment Station, Gainesville, Florida.
- Brumley, Frank Warner - The Labor Requirements of Florida Crops, 1926. University of Florida Library (thesis).
- Camp, A. F. - Production of Limes in Florida. Florida State Horticultural Society Proceedings, pp. 115-120, 1933.
- Carlson, L. - Seasonal Opportunities and Earnings in Four Important Industries. Magazine of Wall Street Vol. 59, pp. 389. January 2, 1937.
- Cassel, E. F. - What the Products Companies Mean to the Citrus Growers. California Citrograph, Vol. 21, pp. 196. April, 1936.
- Coarsog, W. B. - Selling Citrus Fruits. Florida State Horticultural Society Proceedings, pp. 75-78, 1934.
- Coe, P. F. - Limes for the Nation. American Fruit Grower, Vol. 56 pp. 12. April, 1936.
- Dean, Nina Oliver - Golden Harvest: The Romance of Florida Citrus. Prepared for the Semi-Centennial Celebration of the Florida Horticultural Society, Ocala, Florida, April 14, 1937.
- Edwards, A. C. - Statistics Relative to the Grapefruit Industry 1935. U. S. Department of Agriculture, Bureau of Agricultural Economics. Mimeographed, 1936.
- Edsall, Robert Spencer - The Relations between Growth and Yield of Grapefruit trees as affected by Season and Nitrogen Fertilizer treatments. University of Florida, Gainesville, Florida, 1931.
- Ellison, E. S. and Camp, A. F. - Frost Service Grower's Handbook. Published and distributed by Chilean Nitrate Educational Bureau, Inc., Orlando, Florida, 1937-1938.
- Erwin, Wasey and Co. - Proposed Advertising Plan and Recommendations for the Florida Citrus Growers' Clearing House Association, Inc. Erwin, Wasey and Company, New York, N. Y., 1928.
- Foran, Fred Nagib - An Economical Study of the Lake Hamilton Citrus Growers Association, 1934, U. of F. Library.
- Gray, J. C. - Citrus Incomes of the Future. California Cultivator, Vol. 84, pp. 94. February 13, 1937.
- Hagen, W. E. - How J. H. Ughart Won Title of Father of Pack and Grade of Citrus. California Citrograph, Vol., 22, pp. 551. October, 1937.

- Hamilton, H. G. and Brooker, M. A. - Study of the Cost of Handling Citrus Fruit from the Tree to the Car in Florida. Florida Agriculture Experiment Station Bulletin No. 266, 1934.
- Hawthorne, H. W. - Cost of Production of Citrus Fruits, Data from Studies in California and Florida Selected Years, 1917-35, Compiled from Official Sources.
- Hawthorne, H. W. and Turlington, J. E. - Economic Study of Absentee Ownership of Citrus Properties in Florida. Florida Agriculture Experiment Station. Bulletin, No. 287, pp. 1-32, 1935.
- Heydenbelt, F. P. - Relation of Picking Aid Pooling Plans to Orderly Marketing California Citrograph, Vol. 22 pp. 288, May, 1937.
- Hiatt, C. R. - Grove Practices in Lake County. Florida State Horticultural Society Proceedings pp. 20-6, 1934.
- Howard, Raymond Holt - Florida Citrus Costs and Returns - Summary 1930-1931, (1934-1935). Agriculture Economic Department, Agriculture Extension Service, University of Florida, 1936.
- Huiden, R. - Idle Thoughts on the Orange. California Citrograph, Vol. 22, pp. 592-3. October, 1937.
- Hume, Harold Hardreda - The Cultivation of Citrus Fruits. The Macmillan Company, New York, 1926.
- Hunt, M. G. - List of Publications of U. S. Department of Agriculture. January 1931-December, 1935. U. S. Agriculture Miscellaneous Publication, Vol. 252, pp. 1-64, 1936.
- Hutchings, Richard Moir - Trends in the Marketing of Florida Citrus Fruits. University of Florida, Gainesville, Florida, 1929.
- Kellogg, John Harvey - Dietetic Importance of Florida Fruits. Washington, U. S. Government Printing Office, 1935.
- Lee, J. M. - List of Employees of the State of Florida as of March, 1937. Supplement to Report of the Comptroller of Florida, Tallahassee, 1937.
- Lincoln, E. E. - Advantages of Cooperatives and Associations in Buying, Marketing, Selling, and Research. pp. 582-3. Responsibilities of Management of Labor, of Owners, of Public, of Government. pp. 573-5. Applied Business Finance, A. W. Shaw Company, New York, 1926.
- Lindsay, C. D. - The Development of the Citrus Canning Industry. Citrus Industry, November, 1937, pp. 8. Bartow, Florida.
- Linos, E. - Comments on Citrus Advertising. Florida State Horticultural Society Proceedings, pp. 73-5, 1934.
- Loesocke, H. W. von - Possibilities of Preparing Alcoholic Citrus Beverages Florida State Horticultural Society Proceedings, pp. 85-90, 1934.
- MacCurdy, R. M. - History of the California Fruit Growers Exchange. Probably Published by the Exchange, 1925.
- Maloney, O. D. - Marketing Florida Citrus Fruits. University of Florida, Gainesville, Florida, 1918.
- Matlack, Marion B. - A report on Research Relating to the Preservation of Orange Juice Submitted to the Citrus Research Fellowship Committee.
- Mayo, Nathan - Citrus Fruit Law, Rules and Regulations and List of Citrus Fruit Packing Houses. Commissioner of Agriculture, Tallahassee, Florida, 1931.
- Mayo, Nathan - Cooperative Marketing Laws of Florida. Bulletin No. 76. State Department of Agriculture, Tallahassee, Florida.

- Mayo, M. D. and Brooks, T. J. - South Florida. A printed illustrated pamphlet issued by the State Department of Agriculture, Tallahassee, Florida. No date, but published about 1934 or 1935.
- Mayo, Nathan and Taylor J. J. - Citrus Inspection Bureau. Annual Report Season of 1936-1937. Published by State Department of Agriculture, Tallahassee, Florida, 1937.
- Melvin, C. T. - Research in Relation to the Citrus Industry. Florida State Horticultural Society Proceedings, pp. 74-6, 1933.
- Motters, F. H. - Citrus Industry of America. Journal of Department of Agriculture, South Australia. Vol. 40 pp. 222-36. October, 1936. (11 tabs)
- Myers, W. I. - Southern Farm Land in Demand. Manufacturing Record, Vol. 106, pp. 34. July, 1937.
- Newell, S. R. - Florida Citrus Tree Survey, Preliminary Report, U. S. Department of Agriculture, Bureau of Agricultural Economics, Division of Crop and Livestock Estimates, Washington, D. C. July, 1935.
- Northern, C. - Florida's Monopoly. Market Growers Journal, Vol. 60, pp. 165-6, March 15, 1937.
- O'Byrne, Frank McCord - Cooperative Marketing of Citrus Fruits in Florida. University of Florida, Gainesville, Florida, 1913.
- Phillips, H. - Can Tangerines be Made our Leading Citrus Crop? Florida State Horticultural Society Proceedings, pp. 42-4, 1934.
- Powell, Harold Clark - The Culture of the Orange and Allied Fruits. Johannesburg Central News Agency, 1930.
- Reavell, J. A. - Recent Work on Concentration of Fruit Juices and Fruit Drying Chemistry and Industrial, Vol. 56, pp. 618-21. July, 1937.
- Rhodes, H. R. - Florida Citrus Joint Marketing; its Volume, Distribution and Sale. Florida Agriculture Department, pp. 79, 1933.
- Rhodes, Neill - Florida Vegetables and Citrus Fruits. Florida Department of Agriculture, New Series No. 88, April, 1933, pp. 77-144.
- Rhodes, Neill - From Field to Market with Florida Vegetables and Citrus Fruits Florida Marketing Bureau, Department of Agriculture, Tallahassee, Florida 1931.
- Rios, Policarpo, Gonzalez - Studies on the Histology and Cause of Storage Pitting of Citrus Fruits. University of Florida, Gainesville, Florida, 1932.
- Roberts, George Carl - The Production, Receipts, Costs and Profits on Ten Citrus Groves. University of Florida Library, 1932.
- Roberts, J. A. and Gaddum, L. W. - Composition of Citrus Fruit Juices. Industrial and Engineering Chemistry, Vol. 29 pp. 574-5, May, 1937.
- Robinson, T. R. - Tangelo Varieties and Their Possibilities. Florida State Horticultural Society Proceedings, pp. 110-12, 1934.
- Rogers, Frazier - The Economic Use of Tractors in Florida for 1929, 1930, University of Florida Library (thesis).
- Scott, J. M. and Others - Citrus Growing in Florida. Florida Agriculture Department Bulletin No. 2, pp. 1-98, 1935.
- Sholtz, David - Citrus Industry and the State. Florida State Horticultural Society Proceedings, pp. 64-6, 1934.
- Steffani, C. H. - Growing of Limes and Other Acid Fruits. Florida State Horticultural Society Proceedings, pp. 120-2, 1934.
- Stockbridge, Frank Parker and Perry, John Holliday - So This Is Florida? John H. Perry Publishing Company, Jacksonville, Florida, pp. 77-93, 1938.

- Thompson, D. J. - J. Smith Dungan, Prominent Exeter Citrus Grower, Started as Day Laborer. California Citrograph, Vol. 21, pp. 369, August, 1936.
- Thompson, D. J. - Rambling Around Among Citrus Groves and Packing Houses. California Citrograph, Vol. 22 pp. 372-3. June, 1937.
- Tobrina, H. O. - Economic Democracy in Agriculture is Legal. Pacific Rural Press, Vol. 134, pp. 110. July 31, 1937.
- Truul, Hamilton T. and Robinson, T. Ralph - Improvement of Sub-Tropical Fruit Crops - Citrus Fruit. Citrus Industry, pp. 12, November, 1937, Bartow, Florida.
- Turlington, J. E. - Cost, Yields, Receipts and Profits, Ten Groves for Sixteen Years, 1916-1917 to 1931-1932 Inclusive. Florida State Horticultural Society Proceedings, pp. 24-32, 1933.
- Wilson, H. F. - Marketing Florida Citrus, Summary of 1933-1934 Season and 1932-1933 Season. Market News Service on Fruits and Vegetables, Orlando, Florida, 1934.
- Wilson, H. F. - Marketing Florida Citrus, Summary of 1936-1937. Summary of 1935-1936. Summary of 1934-1935. Florida State Marketing Bureau, Lakeland, Florida, June 22, 1937, June 20, 1936, June 19, 1935.
- Zimmerman, F. L. List of Available Publications of U. S. Department of Agriculture, January 2, 1937. U. S. Agriculture Miscellaneous Publications, Vol. 60, pp. 1-191, 1937.

References by Subject

- Agricultural Outlook Charts - Fruits and Nuts, 1936. U. S. Department of Agriculture, Washington, D. C. October, 1936.
- Agricultural Research Relating to Canning Crops; Review of Work in Progress and Publications Issued Since 1932 - National Cannery Association, Bureau of Raw Products Research, Washington, D. C.
- Agricultural Year Book - U. S. Department of Agriculture, Washington, D. C. Issued Yearly.
- American Fruit Grower - Monthly Publication of American Fruit Grower Publishing Co., 19370 Ontario Street, Cleveland, Ohio.
- Annual Citrus Development Pictorial - The Sunday Sentinel-Star, Orlando, Fla. Sunday, November 28, 1937.
- Annual Report of Florida State Marketing Bureau for Fruits and Vegetables, September 1, 1937 - Published by State Department of Agriculture.
- Atchison, Topeka and Santa Fe Railway Co., Chicago, Illinois, 1938. Citrus in Southeast United States.
- Central Florida - Issued by Department of Agriculture, Tallahassee, Florida, 1935, and prepared by Nathan Mayo, Commissioner of Agriculture, and T. J. Brooks, Assistant Commissioner.
- Citrus Fruit, 1932-1935 - Survey of Current Business, pp. 91, 1936.
- Citrus Growing in Florida - Bulletin No. 2, New Series, August, 1935, State of Florida, Department of Agriculture.
- Colorful Early Days of Citrus Industry - California Citrograph, Vol. 22 pp. 294, May, 1937; also Vol. 19, pp. 70, 94, 118, 143, 181, 210, 236, 268, 302, 342, January-April, 1934; Vol. 20, pp. 10, 42, 70, 98, 130, 166, 274, 310, 342, July-September, 1935. Part 4 of Pacific Rural Press, Vol., 127, pp. 401, April 28, 1934.
- Committee-- Statistics of Fruits and Vegetables, U. S. Department of Agriculture Separate from Agricultural Statistics 1937, No. 13. U. S. Government Printing Office.

- Constitution and By-laws of the United Cannery Agricultural Packing and Allied Workers of America, Effective July 15, 1937. Affiliate of C.I.O. Rooms 50-52, Rust Building, Washington, D. C.
- Florida Department of Agriculture - The Third Census of the State of Florida Taken in the Year 1905. Extracts from this publication form an appendix in the "Ninth Biennial Report of the Commissioner of Agriculture, State of Florida for the Period Beginning January 1, 1905 and Ending December 3, 1906."
- Florida Grower - Published by Florida Grower Press, Inc., 1306 Grand Central Avenue, Tampa, Florida.
- Florida State Planning Board - Directory of State Officers, 1936. Boards, departments and commissioners of Florida Revised to July 1, 1936. Compiled by Florida State Planning Board from the records and with the co-operation of the Secretary of State.
- Fruit Juice Bottle Versus Can - Business Week, pp. 43, December 12, 1936.
- How and When to Fertilize Citrus Fruits - Wilson and Toomer Fertilizer Co., Jacksonville, Florida, 1916.
- Plants Culture of Fruits, Vegetables, Grain, Grasses and Cereals Price List. 44-33rd Edition. October, 1937. Government Printer, Washington, D. C. Valuable as a source of materials.
- Present Status of Florida Citrus Rates For 1937-1938. - Citrus Industry, pp. 5 November, 1937. Bartow, Florida.
- Proceedings of Annual Meetings of the Florida State Horticultural Society. Published by the Society, Office of Publication, Deland, Florida.
- Report of Citrus Fruit Inspection for 1935-1936. - Contains Florida laws regulating citrus industry and U. S. standards for citrus fruits. Department of Agriculture, Citrus Inspection Bureau, Tallahassee, Florida.
- Statistics Relating to the Orange Industry, 1935-1936 - Compiled by A. C. Edwards, Assistant Agricultural Economist of the U. S. Department of Agriculture, Bureau of Agricultural Economics, Foreign Agricultural Service, Washington, D. C., May, 1936.
- Study on Export of Florida Citrus Fruit to United Kingdom and Continental Countries, August 15, 1936. Indian River Refrigeration Terminal Co., Fort Pierce, Florida.
- Text of Agriculture Marketing Agreement Act of 1937 - Commercial and Financial Chronicle, Vol. 145, pp. 1677-8, September 11, 1937.
- The California Citrograph - Published by California Citrograph Publishing Co., 1118 Story Building, Los Angeles, California.
- The Citrus Industry, Vol. 1 pp. 17, Tampa, Florida.
- The Citrus Industry - Publication of the Citrus Growers and Shippers, 550 North Broadway, Bartow, Florida.
- The Orange Industry, Orange and Orange Culture - The Americana, Vol. 20, pp. 722-724, 1937.
- The Outlook for Oranges for 1938; the Outlook for Lemons for 1938; The Outlook for Grapefruit for 1938 - Written in October, 1937, before the final (December) crop reports were ready, and released on November 10, 1937, by the United States Department of Agriculture, Bureau of Agricultural Economics, Washington, D. C.
- The Fruit Situation, Exports - U. S. Department of Agriculture, Bureau of Agricultural Economics, February 28, 1938.

HELPS FOR VOCATIONAL GUIDANCE COMMITTEES

BY

A. R. MEAD

One of the best things we can do for our youth is to provide them information about various life careers, and a second thing is to help them think through the problem of a choice of a life career. The public school is the best single agency for doing these two things, but in cooperation with other agencies. In this period of repeated cuts in school support, schools have found it impossible to add much-needed books to their libraries.

Appended is a selection list of books with publishers and list prices. By purchasing direct from the publisher, or through your local library, these can be secured at about 18% discount net. As a minimum, we recommend that each club in the state purchase one set of these for use in the local high schools. Larger clubs may want to purchase several sets for the several high schools in their area. Still better, the larger clubs can purchase the larger sets of books. Please note that the second list is supplementary to the first. In any case consult with school officials before purchasing, in order to avoid possible duplication of a few books already accessible.

In addition, it is strongly urged that each club take out two annual subscriptions to the magazine "Occupations", published by the National Occupational Conference, 522 Fifth Avenue, New York City. Have one copy sent to the chairman of your vocational guidance committee and place one copy in your high school library; cost, \$3.50 per year per subscription.

The supplementary list, when discounts are applied will cost about \$24.00. Combining both lists, the 29 books and 19 pamphlets can be secured for about \$50.00.

To help the teachers in schools, the following are suggested:

1. Myers, THE PROBLEM OF VOCATIONAL GUIDANCE (in first list)
2. Pondry, E. R. and Hartshorne, H. ORGANIZATIONS FOR YOUTH
McGraw-Hill Book Co., Inc. 330 W. 42nd St. New York City \$2.75
3. Brewer, J. M. EDUCATION AS GUIDANCE
Macmillan Co. 500 Springs St. N. W. Atlanta, Ga. 1933 \$2.75
4. Koss, L. V. and Kefauver, G. GUIDANCE IN SECONDARY SCHOOLS
Macmillan Co. 500 Springs St. N. W. Atlanta, Ga. \$2.50

A VERY DESIRABLE LIST OF BOOKS
FOR VOCATIONAL GUIDANCE IN HIGH SCHOOLS

Verneys, Edward, AN OUTLINE OF CAREERS Doubleday Doran Company, Garden City, New York	\$2.50
Davis, Frank G. and B. Carnall, GUIDANCE FOR YOUTH Ginn and Company, 165 Luckie Street, Atlanta, Georgia	1.40
Gowin, E. B., Whearley, W. A., and Brerer, J. M. OCCUPATIONS Ginn and Company, 165 Luckie Street, Atlanta, Georgia	1.48
Hill, Howard C. COMMUNITY AND VOCATIONAL CIVICS Ginn and Company, 165 Luckie Street, Atlanta, Georgia	1.92
Louck, Miriam S. FIELDS OF WORK FOR WOMEN D. Appleton-Century Co., 35 West 32nd Street, New York City	2.50
Proctor, William M., VOCATIONS Houghton Mifflin Co., 39 Harris Street, Atlanta, Georgia	1.40
Smith and Blough, PLANNING A CAREER American Book Co., 91 Cone Street, Atlanta, Georgia	1.44
Bliss, Walton B., YOUR SCHOOL AND YOU Allyn & Bacon, 249 Peachtree Street, Atlanta, Georgia	1.20
Holbrook, H. L. OUR JUNIOR HIGH SCHOOL Allyn & Bacon, 249 Peachtree Street, Atlanta, Georgia	1.00
Myers, Robinson, and Little, PLANNING YOUR FUTURE McGraw-Hill Co. 330 West 42nd Street, New York City	1.50
Kitson, Harry D. I FIND MY VOCATION McGraw-Hill Co. 330 West 42nd Street, New York City	1.40
Myers, George E. THE PROBLEM OF VOCATIONAL GUIDANCE The Macmillan Co., 500 Springs St., N. W. Atlanta, Georgia	1.60

The following pamphlets can be purchased at the rate of 5¢ per copy from the Superintendent of Documents, Government Printing Office, Washington, D. C.:

No. 5-Law, No. 6-Medicine, No. 7-Dentistry, No. 8-Journalism, No. 9-Librarian-ship, No. 10-Architecture (revised), No. 11-Civil Engineering, No. 12-Electrical Engineering, No. 13-Mechanical Engineering, No. 14-Pharmacy (revised), No. 15-Nursing, No. 16-Forestry, No. 17-Music, No. 18-Veterinary Medicine, No. 19-Chemistry and Chemical Engineering, No. 20-Art, No. 21-Home Economics, No. 22-Optometry. (Others to follow). This list of books placed in your high schools and sponsored by the principal or a "key-teacher" can be of very great value. The prices given are list prices. If you have a school

official to purchase them, a net discount of about 16% can be secured, making the total net cost of the set about \$16.50.

BOOKS ON VOCATIONS
SUPPLEMENTARY LIST

Bate, W. E. and Wilson E. A., STUDIES IN VOCATIONAL INFORMATION - 1926 Longmans Green & Co., 114 Fifth Avenue, New York City	\$1.20
Cades, Hazel Ranson, JOBS FOR GIRLS - 1929 Harcourt, Brace & Co., 383 Madison Avenue, New York City	2.00
Davis, Howard Lee, THE YOUNG MAN IN BUSINESS - 1931 John Wiley & Sons Inc., 440 Fourth Avenue, New York City	2.00
Ernst, Clayton Holt, OPPORTUNITY AHEAD - 1921 D. Appleton-Century Co., 35 West 32nd Street, New York City	1.50
Ernst, Clayton Holt, WHAT SHALL I BE? - 1929 D. Appleton-Century Co., 35 West 32nd Street, New York City	1.50
Flieschman, Doris E., AN OUTLINE OF CAREERS FOR WOMEN - 1934 Doubleday, Doran & Co., Inc., Garden City, New York	2.50
Faucher, A., GETTING A JOB AND GETTING AHEAD - 1931 McGraw-Hill, 330 West 42nd Street, New York City	2.00
Filene, C. (Ed.), CAREERS FOR WOMEN - 1920 Houghton Mifflin Co., 39 Harris Street, Atlanta, Georgia	2.00
Fryer, D., VOCATIONAL SELF-GUIDANCE - 1925 J. B. Lippincott Co., Washington Square, Philadelphia, Pa.	1.20
Halle, Rita S., WHICH COLLEGE? - 1931 Macmillan Co., 500 Spring Street, N. W., Atlanta, Georgia	2.50
Hatcher, O. L., (Ed.) OCCUPATIONS FOR WOMEN - 1927 Southern Women's Educational Alliance, Richmond, Va.	2.50
Hoorlo, H. C., and Saltzherb, F. B., THE GIRL AND THE JOB - 1919 Henry Holt & Co., New York City	1.50
Holbrook, H. L., & McGregor, OUR WORLD OF WORK - 1929 Allyn & Bacon, 249 Peachtree Street, Atlanta, Georgia	1.40
Kitson, Henry Dexter, HOW TO FIND THE RIGHT VOCATION - 1929 Harper and Brothers Publishers, 49 East 334d St., N. C., Atlanta, Georgia	2.60
Lyon, Leverett S., MAKING A LIVING - 1931 Macmillan Co., 500 Spring St., N. W., Atlanta, Georgia	1.60

Rodgers, G. Esca, CAREERS - 1931

D. Appleton-Century Co., 35 West 32nd Street, New York City 1.50

Stearns, Myron M., WHAT KIND OF COLLEGE IS BEST? - 1932

The John Day Co., New York City 1.25

BIBLIOGRAPHYINDUSTRIAL STUDIES

1. California Youth Administration, 49 Fourth St., San Francisco.
Canning (fruits and vegetables) Aircraft Mfg.
2. Illinois Youth Administration, Merchandise Mart, Chicago

Air Conditioning Automotive Aviation Mfg. Air Transportation Beauty Culture Candy Making Clerical Diesel Engineering Domestic Occupations Dressmaking & Designing Electrical Appli. Mfg. Farming Furniture Making	Garment Industry Hotel Occupations Insurance Laundry Occupations Meat Packing Milk Distribution Millinery Radio Broadcasting Radio Industry Restaurant Store Occupations Structural Iron Tanning
---	--
3. Indiana Youth Administration, Century Bldg., Indianapolis.
Canning (vegetables)
4. Kentucky Youth Administration, 3rd & Main, Louisville.

Air Conditioning Baking Industry Candy Industry	Domestic Occupations Tobacco Industry
---	--
5. Nebraska Youth Administration, 900 N. 16th Street, Lincoln.
Corn
6. North Carolina Youth Administration, 208 Commercial Bldg., Raleigh
The Tobacco Industry
7. Ohio Youth Administration, Hooster Bldg., Columbus.

Clay Products Glass Industry	Rubber Industry
---------------------------------	-----------------
8. Texas Youth Administration, 714 Brown Bldg., Austin.
Oil Industry
9. Washington Youth Administration, Washington Bldg., Tacoma.
Lumber Industry

10. Wisconsin Youth Administration, Mitchell Bldg., 207 E. Michigan St., Milwaukee.

Air Conditioning
Butter Industry
Cheese Industry
Condensory Occupations

Dairy Farming
Dairy Industry
Ice Cream Industry
Heavy Metal

OCCUPATIONAL STUDIES NYA

1. Georgia Youth Administration, Forsyth St. Bldg., Atlanta.

Beauty Operator
Plant Pathology
Automotive Service

Power Sewing
Soil Science

2. Illinois Youth Administration, Merchandise Mart, Chicago.

Machinist
Music

Nursing

3. Kansas Youth Administration, 801 Harrison St., Topeka

Nursing

4. Kentucky Youth Administration, 3rd & Main, Louisville.

Beautician & Barber
Clerical Worker
Professional Salesman

Radio Service
Sales Person
Waitress
Wood-working Trades

5. Ohio Youth Administration, Hooster Bldg., Columbus

Auto Mechanics
Aviation
Barber
Beauty Operator
Clerical Worker
Diesel Engineering
Gasoline Station Atten.

Letter Carrier
Office Machine Operator
Pharmacist
Plumber
Police Officer
Recreational Worker
Undertaker

6. Wisconsin Youth Administration, Mitchell Bldg., 207 E. Michigan St. Milwaukee

Auto Mechanics
Aviation
~~Landscape~~
Beauty Operator
Forestry
Laboratory Technician

Mail Service
Mining & Metallurgical Eng.
Nursing
Office Positions
Photography
Teaching

Staff of the Study
Supervisory Committee
and Consultants
for the Study

From the University of Florida

A. R. Mead, Director of Educational Research. Chairman of Committee.
W. J. Matherly, Dean, School of Business Administration.
R. C. Beatty, Dean of Students.
E. W. Garris, Professor of Agricultural Education.
H. G. Hamilton, Professor of Agricultural Economics.
E. C. Hinckley, Professor of Psychology and Director of Bureau of Vocational Guidance.
J. W. Norman, Dean, College of Education.
M. W. Carothers, Director of Instruction, State Department of Education

From Other Institutions

Ray V. Sowers, Dean, Southern College, Lakeland.
R. L. Eymann, Dean, School of Education, Florida State College for Women, Tallahassee.
Elizabeth Andrews, Director Personnel, Florida State College for Women, Tallahassee.

Consultants and Advisers.

J. F. Eastham, Principal, Lake City Schools.
W. B. Feagel, Principal, Cross City Schools.
O. R. Davis, Principal, Memorial Junior High School, Orlando.
Joe A. Youngblood, State Director, National Youth Administration, Jacksonville.
C. C. Commander, Manager, Citrus Exchange, Tampa.
C. E. Lindsey, Chairman, Grapefruit Cannery Association, Lakeland.
R. E. Dean, Sr., Area Supervisor, National Youth Administration, Gainesville.

Research Workers and Typists.

Allison Kistler, Graduate Student.
Sidney M. Ross, Graduate Student.
Julian M. Mountain, Typist.
Maurice Williams, Typist.
R. E. Dean, Jr., Card Punch Operator.
Harold Vorles, Card Punch Operator.
Hal G. Lewis, Research Associate.

List of Persons Contributing Materials, Photographs, etc.

1. Mr. Gustave Burmeister, Senior Agricultural Economist, Division of Statistical and Historical Research, Bureau of Agricultural Economics, United States Department of Agriculture, Washington, D. C. March 16, 1938.
2. Mr. John A. Snively, Polk Packing Association, Winter Haven, Florida. May 15, 1938.
3. Mr. C. P. Anderson, Avon Florida Citrus Corporation, Avon Park, Florida. April 30, 1938.
4. Mr. Frank M. O'Dyrne, Waverly Fertilizer Works, Waverly, Florida, April 8, 1938.
5. Mr. Lee A. Wheeler, Secretary-Treasurer, Florida Citrus Cannery Cooperative, Lake Wales, Florida, April 27, 1938.
6. Mr. H. A. Shaver, President, H. A. Shaver, Inc., Lakeland, Florida. April 9, 1938.
7. Mr. Dan McCarty, Indian River Citrus Associates, Fort Pierce, Florida. May 3, 1938.
8. Mr. John D. Clark, President, Waverly Growers Cooperative, Waverly, Fla. April 16, 1938.
9. Mr. Harry E. Dioristina, Vice-President and General Manager, Holly Hill Fruit Products, Inc., Davenport, Florida. April 13, 1938.
10. Mr. Joseph Kovnor, Assistant Counsel, Committee for Industrial Organization, 1106 Connecticut Avenue, N. W. Washington, D. C. April 11, 1938.
11. Mr. Habith Marcus, Director of Research, United Cannery, Agricultural, Packing and Allied Workers of America, Rooms 50-52, Rust Building, Washington, D. C. April 11, 1938.
12. Mr. T. L. Hodson, Field Auditor, Florida Citrus Commission, Lakeland, Florida, April 9, 1938.
13. Mr. J. J. Taylor, State Chemist, Chemical Division, Department of Agriculture, Tallahassee, Florida. May 3, 1938.
14. Mr. Fred A. Safay, Director, Bureau of Sanitation, Florida State Board of Health, P. O. Box 210, Jacksonville, Florida. April 12, 1938.
15. Mr. Harry W. van Loesecke, Senior Chemist, Food Research Division, U. S. Citrus Products Station, Winter Haven, Florida. April 9, 1938.
16. Mr. L. E. Jones, Assistant Manager, Florida Division, Food Machinery Corporation, Dunedin, Florida. April 13, 1938.
17. Mr. L. G. Sansel, Advertising Department, J. I. Case Company, General Office, Racine, Wisconsin. April 20, 1938.
18. Mr. R. S. Simmons, Public Relations & Editor, The Sunkist Courier, Los Angeles, California. March 22, 1938.
19. Mr. M. A. Ramsey, Secretary-Treasurer, Indian River Refrigeration Terminal Company, Fort Pierce, Florida. April 6, 1938.
20. Mr. M. F. McManus, Manager, Indian River Refrigeration Terminal Company, Fort Pierce, Florida. April 8, 1938.
21. Mr. R. D. Keene, R. D. Keene, Inc., Winter Garden, Florida, April 18, 1938.
22. Mr. Frank L. Holland, Manager, Florida Agricultural Research Institute, P. O. Box 392, Winter Haven, Florida. April 19, 1938.

23. Mr. C. P. Persons, District Manager, Bureau of Foreign and Domestic Commerce, United States Department of Agriculture, 425, Federal Building, Jacksonville, Florida. April 22, 1938.
24. Mr. Frank H. Scruggs, Market News Specialist, Florida State Marketing Bureau, Jacksonville, Florida. May 3, 1938.
25. Mr. Leroy E. Northrup, Deland Credit Association, Deland, Florida. April 4, 1938.
26. Mr. J. I. Case Co., Racine, Wisconsin, Photographs.
27. Mr. Howard Philips of Dr. Ph. Philips Co., Orlando
28. James C. Morton for Waverly Growers Cooperative, Waverly. Photographs.
29. Mr. C. C. Commander, Manager, Citrus Exchange, Tampa. Photographs.
30. Mr. Harold H. Hume, Assistant Dean, College of Agriculture, University of Florida. Critical review of manuscript.

INDIVIDUALS INTERVIEWED

1. Mr. F. L. Skinner, grower and packer, Dunedin.
2. Mr. Loncy O'Berry, grower, St. Petersburg.
3. Bill Harris, grower, St. Petersburg.
4. Mr. Kilgore, manager, West Coast Fruit Co., Clearwater.
5. Mr. Bennett, foreman, J. V. D'Albora Co., Cocon.
6. Mr. F. M. Moon, grove caretaker, Lakeland.
7. Mr. C. E. Lindsey, President, Grapefruit Cannery Association, and of Lakeland Highlands Canning Company, Inc.
8. Mr. Ed. Bentley, attorney, Lakeland.
9. Mr. W. L. Messinger, salesman and fair representative, Citrus Concentrates Inc., Dunedin.
10. Bob Rasch, office manager, Citrus Fruit Inspection Bureau, Department of Agriculture, Winter Haven.
11. Mr. Lee Wheeler, secretary, Florida Citrus Cannery Cooperative, Lake Wales.
12. Mr. Bradford, packing house foreman, Chester, C. Fosgate Packing Co., Forest City.
13. Mr. Richard Sias, technical advisor, American Fruit Machinery Corporation Orlando.
14. Mr. Rigo, canning plant superintendent, Florida Citrus Cannery Cooperative Lake Wales.
15. Mr. Frazier, salesman, Food Machinery Corporation, Dunedin.
16. Mr. C. R. Pilkerton, American Fruit Growers, Inc., Orlando.
17. Mr. J. C. Chase, Grower, Packer, shipper, President Florida Horticultural Society, Winter Park.
18. Mr. Howard Phillips, Manager Dr. P. Phillips Packing Co., Orlando.
19. Mr. J. R. DeBarry, picker, Auburndale.
20. Mr. C. H. Thompson, shipper and grower, Winter Haven.
21. Mr. John Holman, Waverly.
22. Mr. J. E. Harris, accountant, Florida Citrus Growers Association, Lake Wales.
23. Mr. Townsend, Sr., Townsend Lumber Co., Lake Wales.
24. Mr. John S. Barnes, John S. Barnes, Inc., Highlands City.

25. Mr. George Burr, President of Orange Festival, Editor of Winter Haven Herald.
26. Mr. Morton, Waverly Growers Cooperative, Waverly.
27. Mr. S. O. Chase, grower, packer, shipper, Sanford Chase & Co., Cooperative.
28. Mr. Huffaker, lawyer, Bartow.
29. Mr. Cramm, packing house foreman, John S. Barnes, Inc., Lakeland.
30. Mr. Wilson, grower, Bartow.
31. Mr. W. G. Roe, manager, Winter Haven Fruit Sales Corporation.
32. Mrs. Nina Oliver Dean, Sanford.
33. Prof. Franklin DeBusk, Citroculturist, Agricultural Extension Service, University of Florida.
34. Mr. Henry Glenn Hamilton, Professor of Agricultural Economics, University of Florida.
35. Mr. Clarence Vernon Noble, Professor of Agricultural Economics, University of Florida.
36. Mr. Alfred T. Anderson, Bookkeeper, Howey-in-the-Hills.
37. Senator Sponsard L. Holland, lawyer, Bartow.
38. Major Tillman, President, Florida Citrus Growers Association, Lake Wales.
39. Mr. Pettison, Waverly.
40. Mr. Chas. F. Chastian, Assistant Secretary Florida Citrus Commission, Lakeland.
41. Packing house manager, Hill Bros. (Cannery), Clearwater.
42. Packing house manager, Citrus City Growers Association, Largo.
43. Bookkeeper, Dr. P. Philip's Canning Plant, Orlando.
44. Office Manager, Chandler Davis, Inc., Lakeland.
45. Stenographer, Eloise Growers, Inc., Winter Haven.

Some Sample Exercises as Suggestions to Teachers

Teachers who use this material may stimulate and guide study and thinking by several means. A very simple work book will help one. A list of questions to guide the student will help. The questions which follow are typical of questions useful for such a purpose.

1. What opportunities exist in the citrus industry for people with high school education? With college education?
2. How do the marketing organizations for citrus products differ in Florida and California?
3. Name at least six types of work now done by machinery in the citrus industry. What machines are used?
4. Why is it possible for people in other states to purchase better Florida oranges than are often available in retail markets in Fla.?

5. What health hazards exist in the industry? What is done by the State health authorities to counteract these?
6. Ascertain the weekly wages of yourself working 8 hours per day for Y. Firm (pp. 77), in each of the following jobs: box maker, grader, house mechanic.
7. What are the best paid jobs in the citrus industry? Why?
8. Ascertain trend as to plantings of oranges and decide whether it should continue. Give reasons.
9. What countries are typically exporting countries for citrus products? Which are typically importing countries? How do Florida citrus rank in use in other countries compared with California citrus? Why?
10. Who conducts our state census? When is it taken? What information is gathered by this census?
11. In our theory of government, what are the relations of legislative executive and judicial powers? Read the Florida plant act of 1937 and ascertain how such powers are exercised.
12. Make a circle graph showing the proportions of persons engaged in groves, packing and canning.

